

## Pantheon Report

Generated at 2018-09-07 12:32:16 (UTC).

Data path: GCE Iowa on `ens4` (*remote*) → GCE Sydney on `ens4` (*local*).

Repeated the test of 18 congestion control schemes 5 times.

Each test lasted for 30 seconds running 1 flow.

NTP offsets were measured against `time.google.com` and have been applied to correct the timestamps in logs.

### System info:

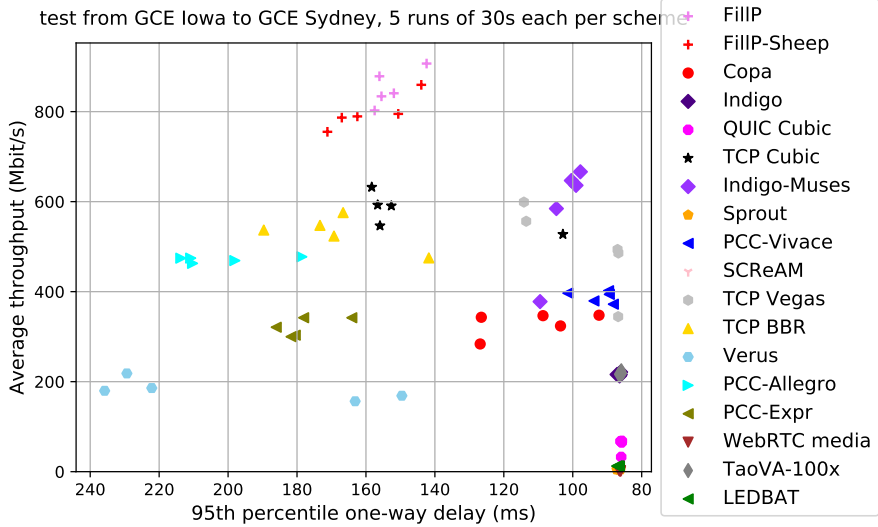
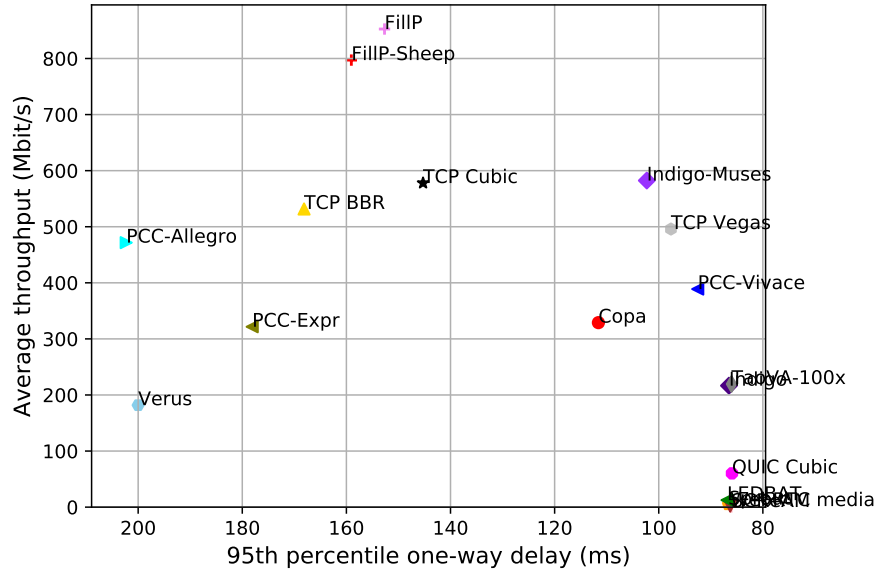
```
Linux 4.15.0-1018-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912
net.ipv4.tcp_mem = 190986 254651 381972
```

### Git summary:

```
branch: muses @ e0a9b05ad97d268013b7cc9a9c95637b593a1b4c
third_party/fillp @ d47f4fa1b454a5e3c0537115c5a28436dbd4b834
third_party/fillp-sheep @ daed0c84f98531712514b2231f43ec6901114ffe
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdf5e58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecd90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 7631aea3923a3598767c87765ae5103aca0678d3
third_party/pantheon-tunnel @ cbfce6db5ff5740dafa1771f813cd646339e1952
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
M receiver/src/buffer.h
M receiver/src/core.cpp
M sender/src/buffer.h
M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quick @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
M src/ScreamClient
M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
M src/examples/cellsim.cc
M src/examples/sproutbt2.cc
M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
M src/verus.hpp
M tools/plot.py
```

third\_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4  
third\_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851

test from GCE Iowa to GCE Sydney, 5 runs of 30s each per scheme  
(mean of all runs by scheme)



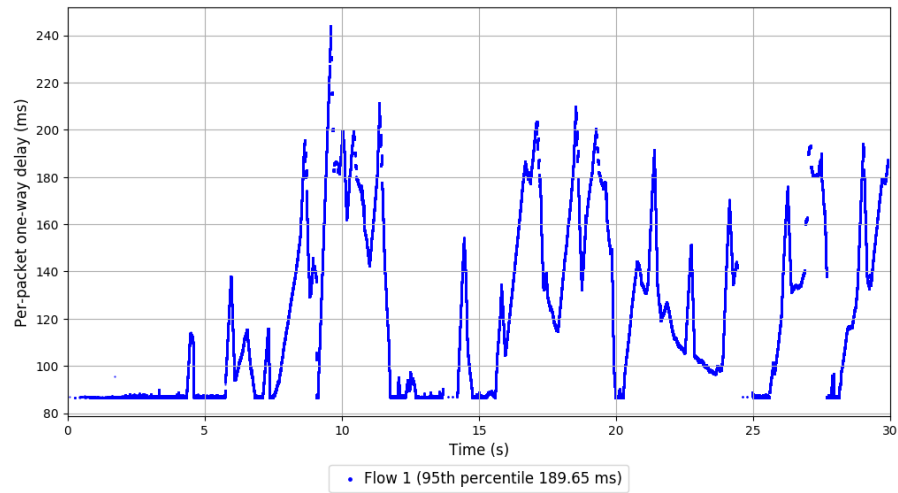
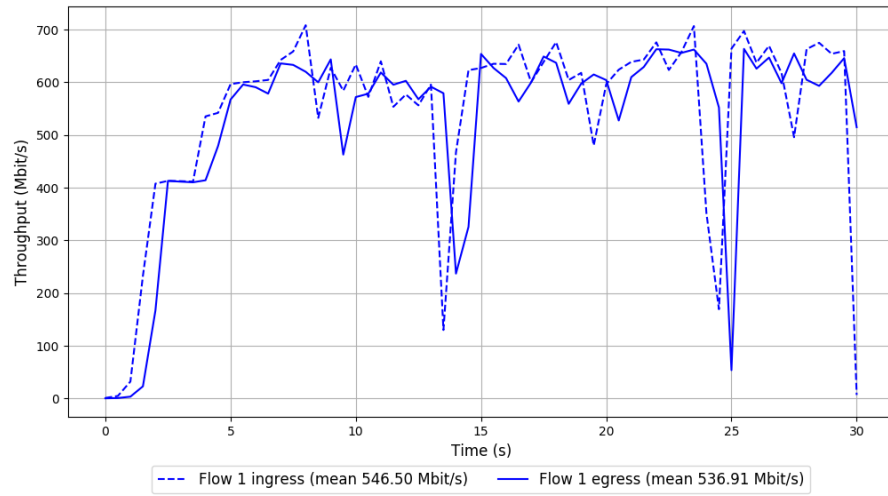
scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	5	531.69	168.13	1.58
Copa	5	328.99	111.59	0.61
TCP Cubic	5	577.91	145.27	0.75
FillP	5	852.55	152.68	3.43
FillP-Sheep	5	797.16	159.05	4.54
Indigo	5	216.62	86.52	0.55
LEDBAT	5	12.52	86.88	1.15
Indigo-Muses	5	582.38	102.30	0.70
PCC-Allegro	5	471.65	202.29	3.46
PCC-Expr	5	321.66	178.10	2.47
QUIC Cubic	5	60.21	85.94	0.80
SCReAM	5	0.22	86.09	0.61
Sprout	5	4.51	86.65	0.56
TaoVA-100x	5	219.52	86.03	0.63
TCP Vegas	5	495.88	97.65	0.63
Verus	5	181.82	200.00	6.00
PCC-Vivace	5	388.88	92.51	0.70
WebRTC media	5	1.90	86.27	0.68

Run 1: Statistics of TCP BBR

Start at: 2018-09-07 09:05:01  
End at: 2018-09-07 09:05:31  
Local clock offset: 24.42 ms  
Remote clock offset: 25.227 ms

# Below is generated by plot.py at 2018-09-07 11:15:44  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 536.91 Mbit/s  
95th percentile per-packet one-way delay: 189.649 ms  
Loss rate: 2.32%  
-- Flow 1:  
Average throughput: 536.91 Mbit/s  
95th percentile per-packet one-way delay: 189.649 ms  
Loss rate: 2.32%

### Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2018-09-07 09:31:43

End at: 2018-09-07 09:32:13

Local clock offset: 9.866 ms

Remote clock offset: 18.354 ms

# Below is generated by plot.py at 2018-09-07 11:16:11

# Datalink statistics

-- Total of 1 flow:

Average throughput: 575.68 Mbit/s

95th percentile per-packet one-way delay: 166.628 ms

Loss rate: 1.34%

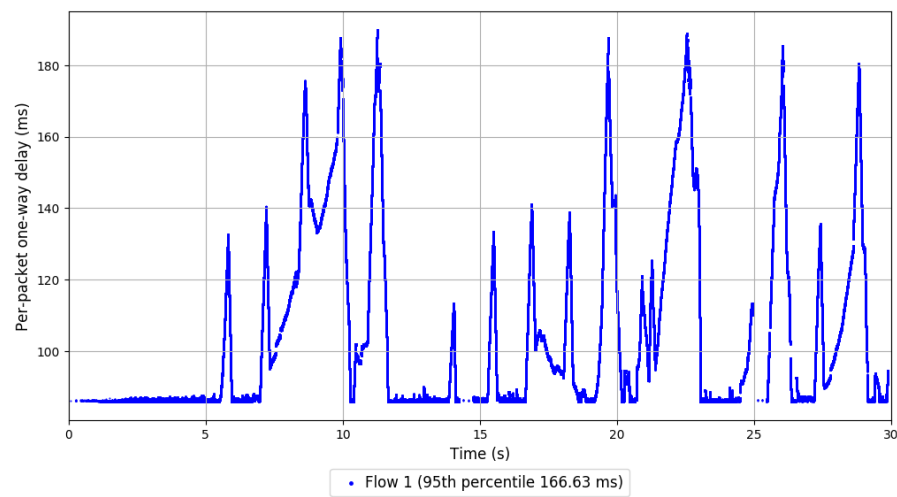
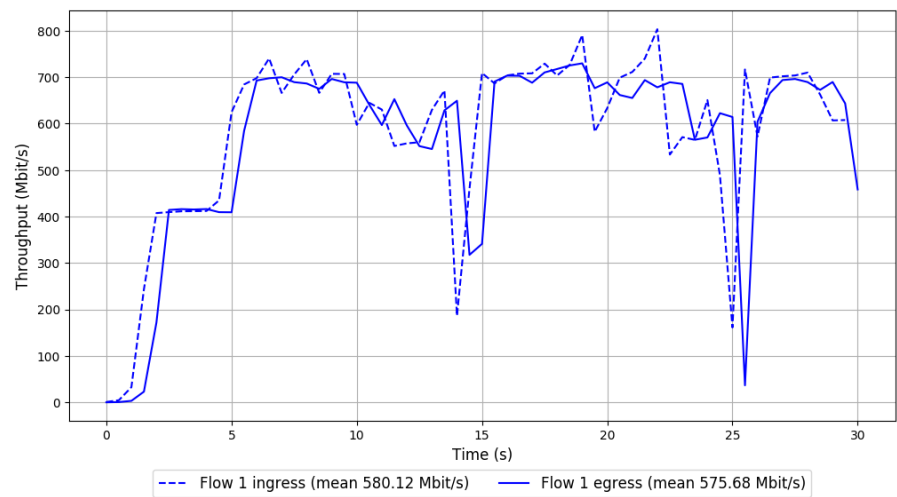
-- Flow 1:

Average throughput: 575.68 Mbit/s

95th percentile per-packet one-way delay: 166.628 ms

Loss rate: 1.34%

Run 2: Report of TCP BBR — Data Link





Run 3: Statistics of TCP BBR

Start at: 2018-09-07 09:58:19

End at: 2018-09-07 09:58:49

Local clock offset: 3.692 ms

Remote clock offset: 7.564 ms

# Below is generated by plot.py at 2018-09-07 11:16:11

# Datalink statistics

-- Total of 1 flow:

Average throughput: 547.27 Mbit/s

95th percentile per-packet one-way delay: 173.343 ms

Loss rate: 1.92%

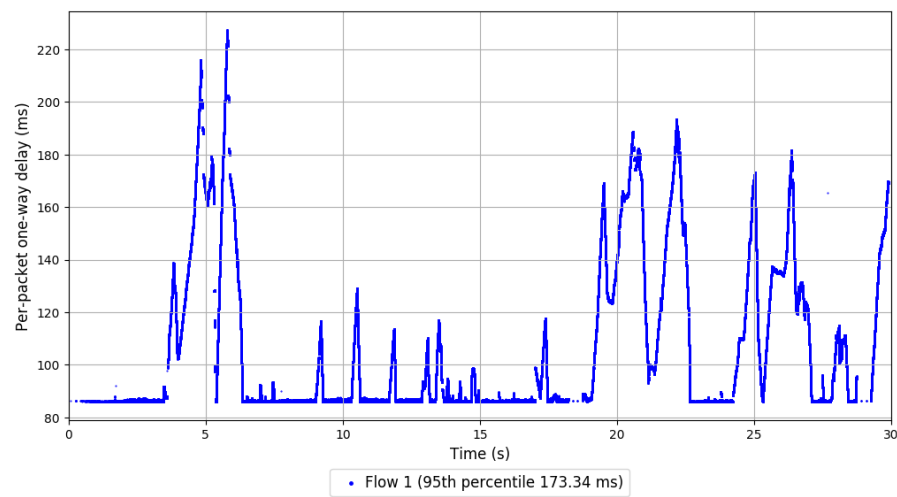
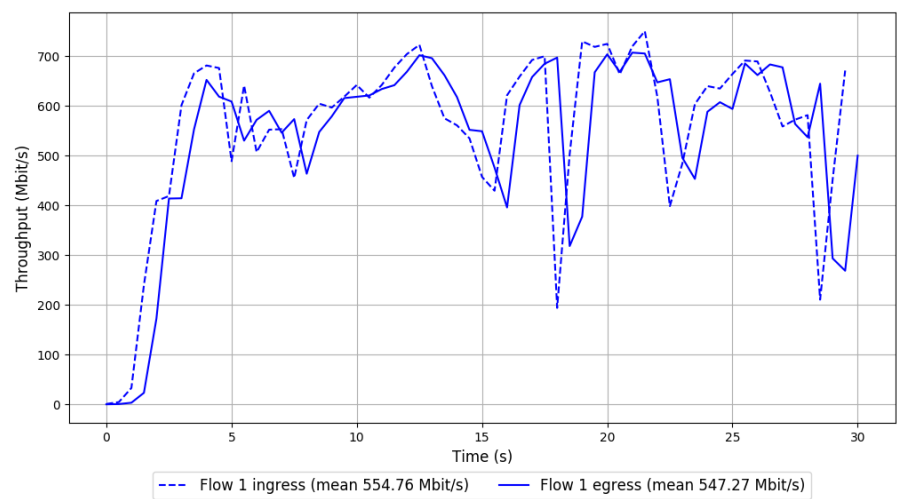
-- Flow 1:

Average throughput: 547.27 Mbit/s

95th percentile per-packet one-way delay: 173.343 ms

Loss rate: 1.92%

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2018-09-07 10:24:39

End at: 2018-09-07 10:25:09

Local clock offset: 1.497 ms

Remote clock offset: 3.455 ms

# Below is generated by plot.py at 2018-09-07 11:16:11

# Datalink statistics

-- Total of 1 flow:

Average throughput: 523.56 Mbit/s

95th percentile per-packet one-way delay: 169.275 ms

Loss rate: 1.32%

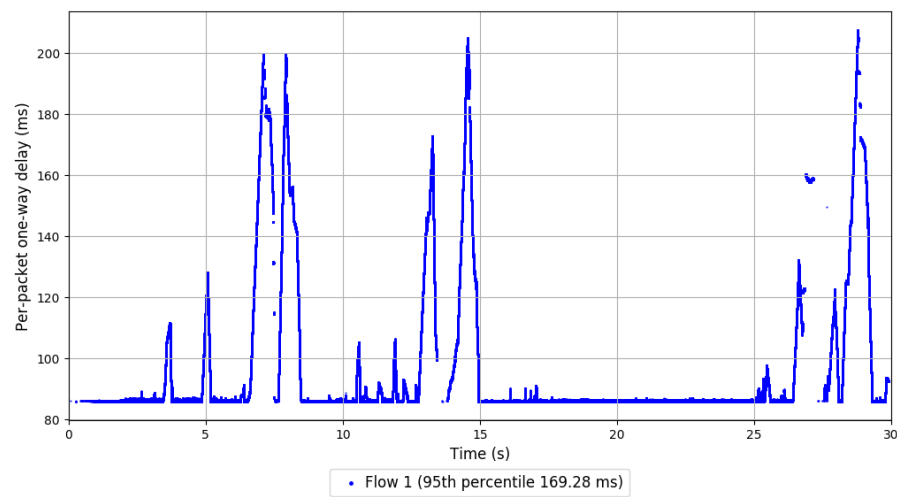
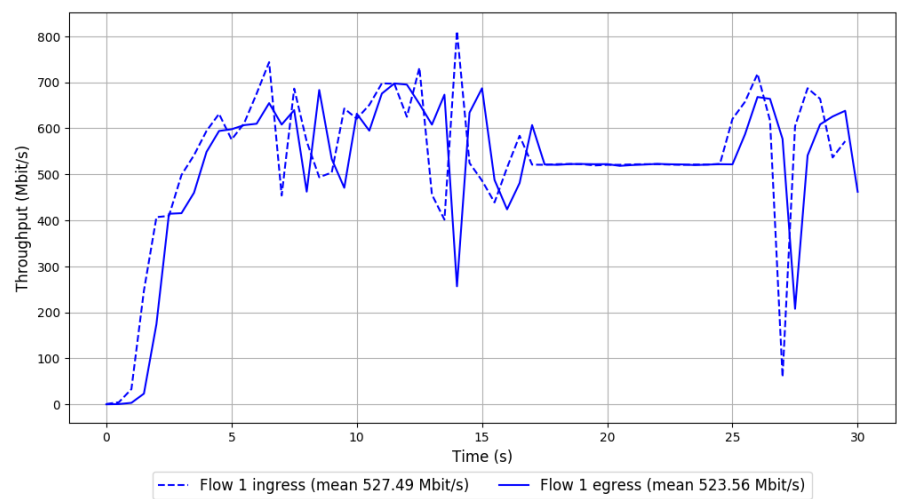
-- Flow 1:

Average throughput: 523.56 Mbit/s

95th percentile per-packet one-way delay: 169.275 ms

Loss rate: 1.32%

Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2018-09-07 10:51:20

End at: 2018-09-07 10:51:50

Local clock offset: 1.019 ms

Remote clock offset: 1.903 ms

# Below is generated by plot.py at 2018-09-07 11:16:11

# Datalink statistics

-- Total of 1 flow:

Average throughput: 475.01 Mbit/s

95th percentile per-packet one-way delay: 141.761 ms

Loss rate: 0.99%

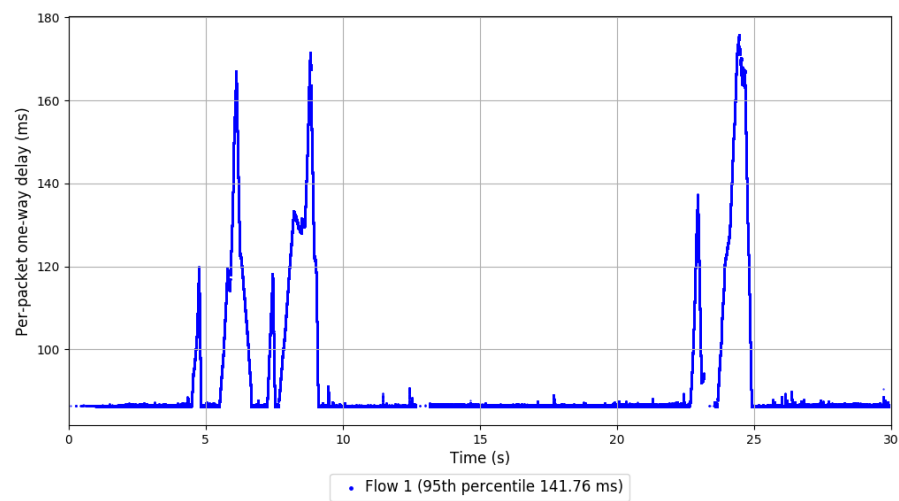
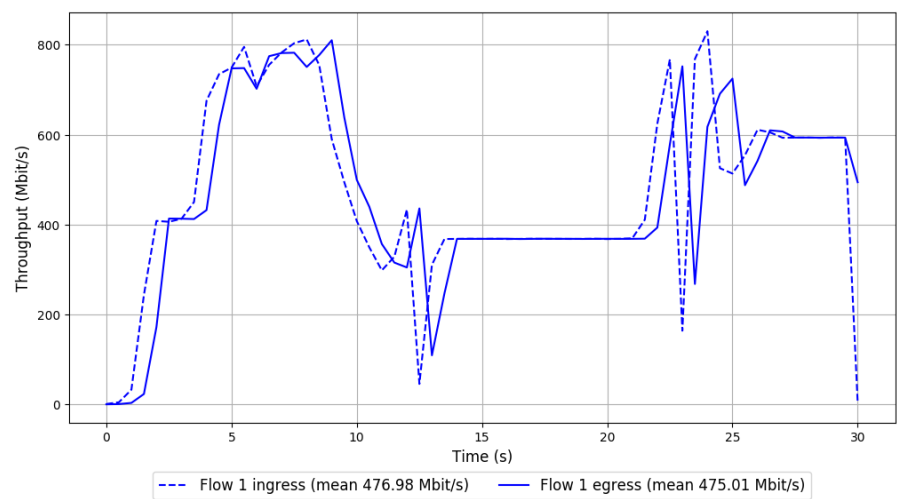
-- Flow 1:

Average throughput: 475.01 Mbit/s

95th percentile per-packet one-way delay: 141.761 ms

Loss rate: 0.99%

Run 5: Report of TCP BBR — Data Link

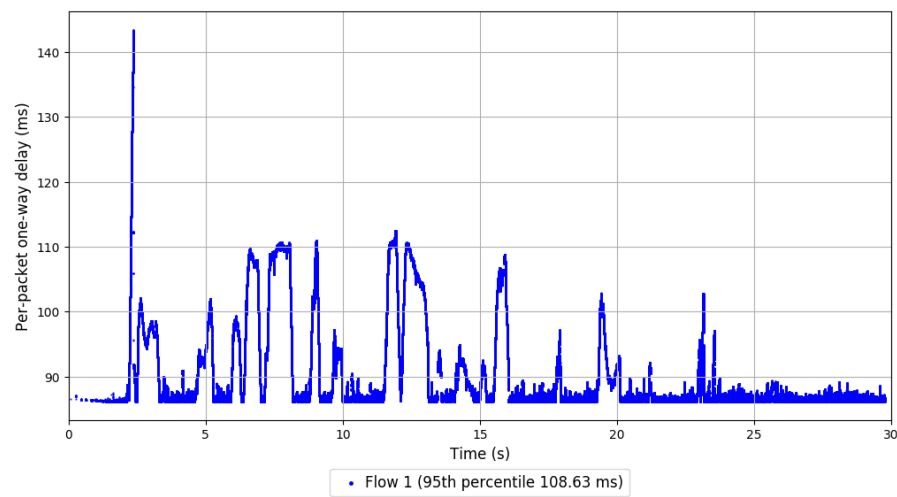
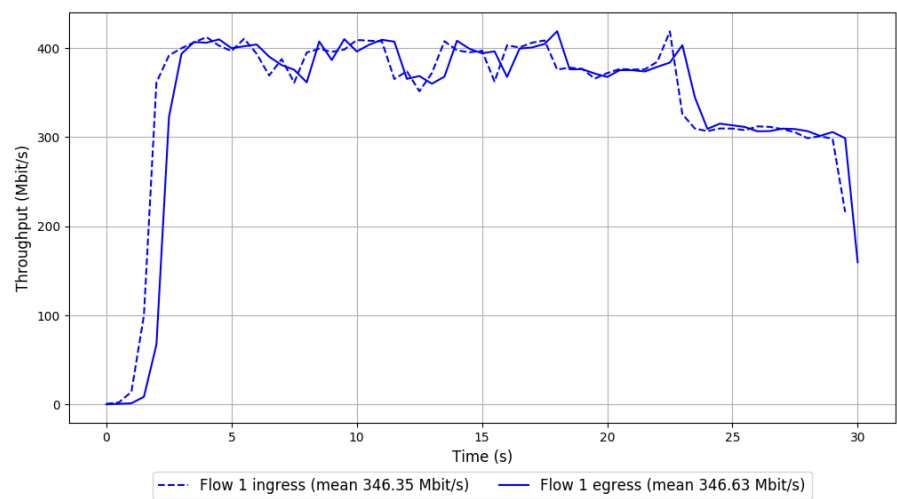


Run 1: Statistics of Copa

Start at: 2018-09-07 08:44:31  
End at: 2018-09-07 08:45:01  
Local clock offset: 24.737 ms  
Remote clock offset: 23.616 ms

# Below is generated by plot.py at 2018-09-07 11:17:13  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 346.63 Mbit/s  
95th percentile per-packet one-way delay: 108.633 ms  
Loss rate: 0.50%  
-- Flow 1:  
Average throughput: 346.63 Mbit/s  
95th percentile per-packet one-way delay: 108.633 ms  
Loss rate: 0.50%

Run 1: Report of Copa — Data Link



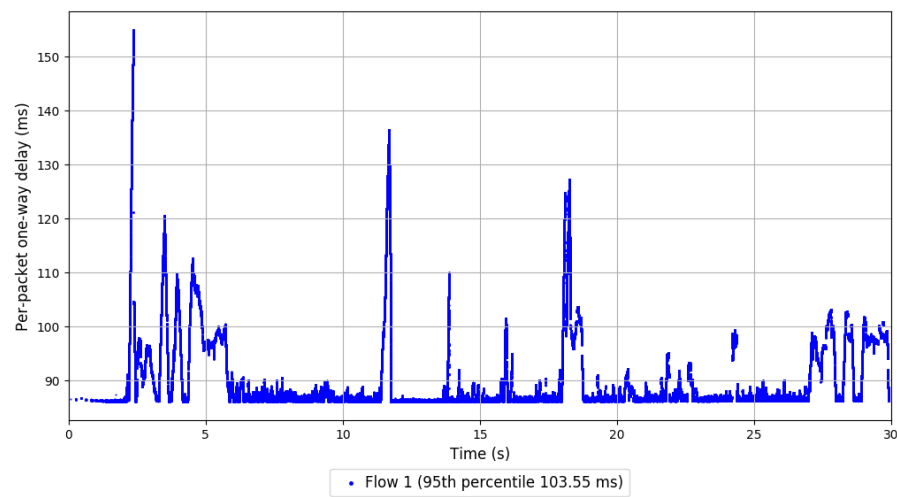
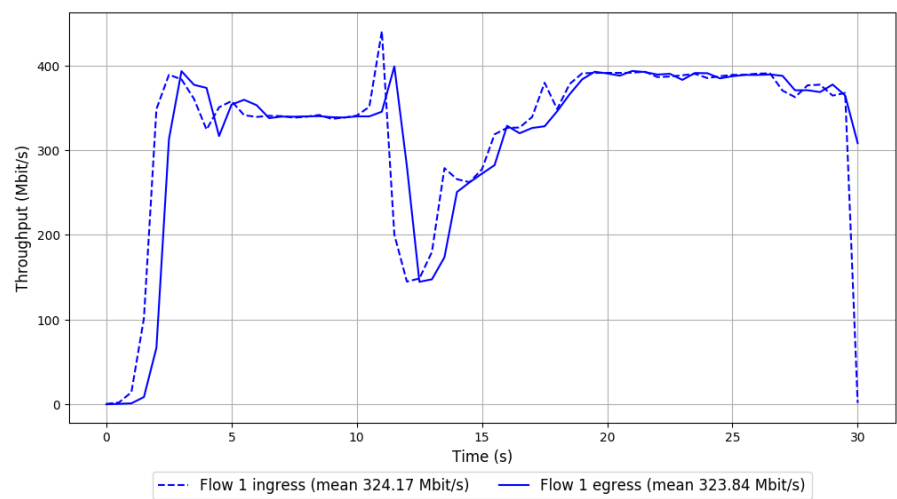


Run 2: Statistics of Copa

Start at: 2018-09-07 09:10:54  
End at: 2018-09-07 09:11:24  
Local clock offset: 14.522 ms  
Remote clock offset: 17.144 ms

# Below is generated by plot.py at 2018-09-07 11:17:13  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 323.84 Mbit/s  
95th percentile per-packet one-way delay: 103.553 ms  
Loss rate: 0.68%  
-- Flow 1:  
Average throughput: 323.84 Mbit/s  
95th percentile per-packet one-way delay: 103.553 ms  
Loss rate: 0.68%

Run 2: Report of Copa — Data Link

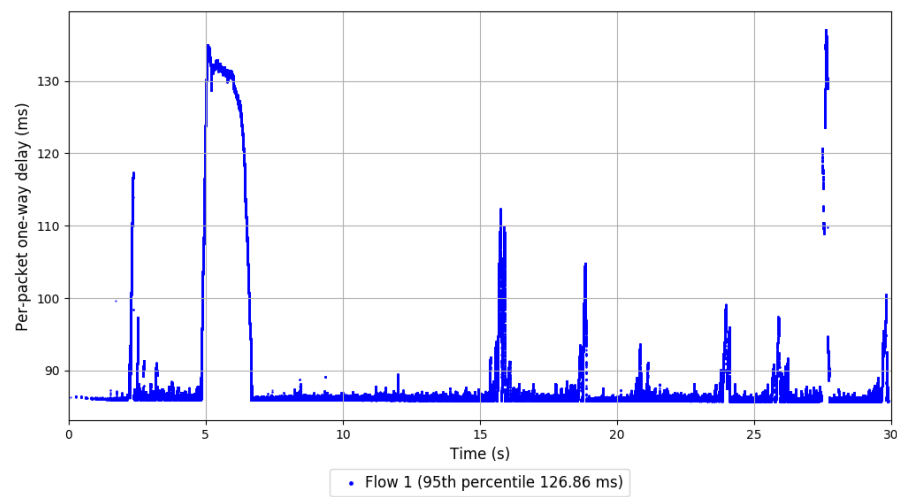
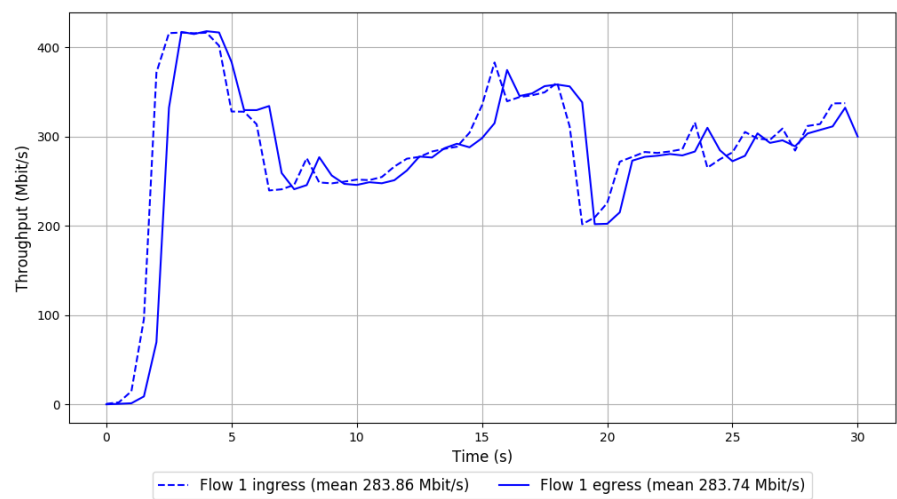


Run 3: Statistics of Copa

Start at: 2018-09-07 09:37:33  
End at: 2018-09-07 09:38:03  
Local clock offset: 7.527 ms  
Remote clock offset: 14.576 ms

# Below is generated by plot.py at 2018-09-07 11:17:13  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 283.74 Mbit/s  
95th percentile per-packet one-way delay: 126.861 ms  
Loss rate: 0.62%  
-- Flow 1:  
Average throughput: 283.74 Mbit/s  
95th percentile per-packet one-way delay: 126.861 ms  
Loss rate: 0.62%

Run 3: Report of Copa — Data Link



Run 4: Statistics of Copa

Start at: 2018-09-07 10:04:01

End at: 2018-09-07 10:04:31

Local clock offset: 3.953 ms

Remote clock offset: 8.531 ms

# Below is generated by plot.py at 2018-09-07 11:25:28

# Datalink statistics

-- Total of 1 flow:

Average throughput: 343.08 Mbit/s

95th percentile per-packet one-way delay: 126.531 ms

Loss rate: 0.65%

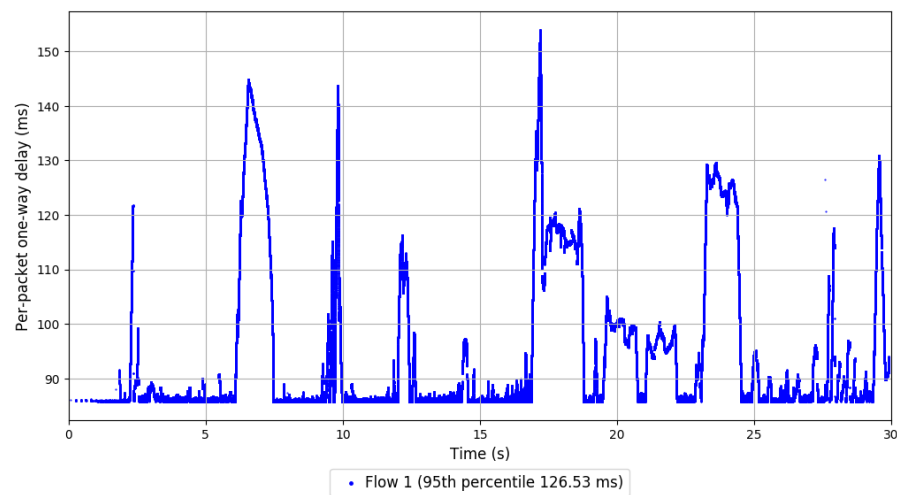
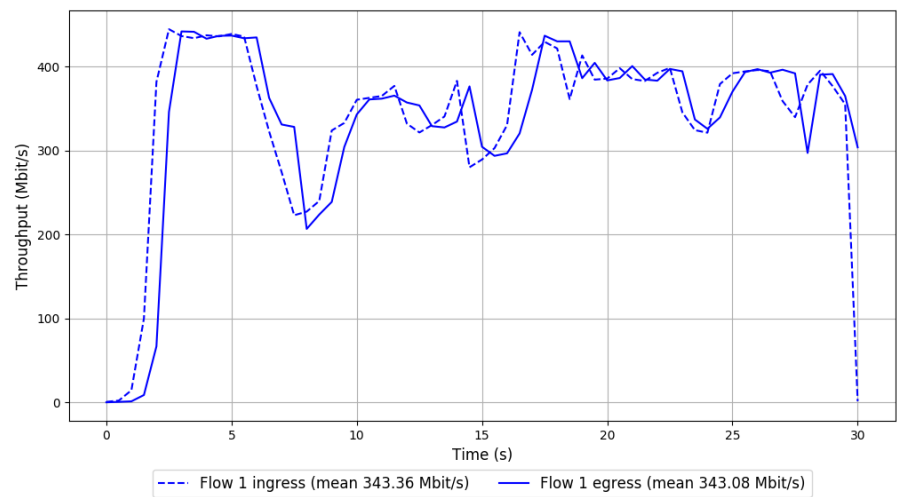
-- Flow 1:

Average throughput: 343.08 Mbit/s

95th percentile per-packet one-way delay: 126.531 ms

Loss rate: 0.65%

Run 4: Report of Copa — Data Link



Run 5: Statistics of Copa

Start at: 2018-09-07 10:30:30

End at: 2018-09-07 10:31:00

Local clock offset: 1.608 ms

Remote clock offset: 3.5 ms

# Below is generated by plot.py at 2018-09-07 11:26:01

# Datalink statistics

-- Total of 1 flow:

Average throughput: 347.64 Mbit/s

95th percentile per-packet one-way delay: 92.377 ms

Loss rate: 0.59%

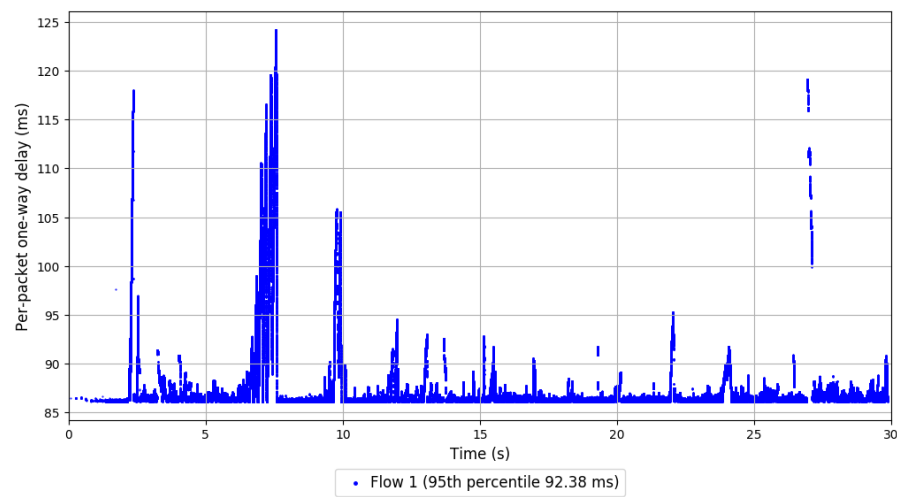
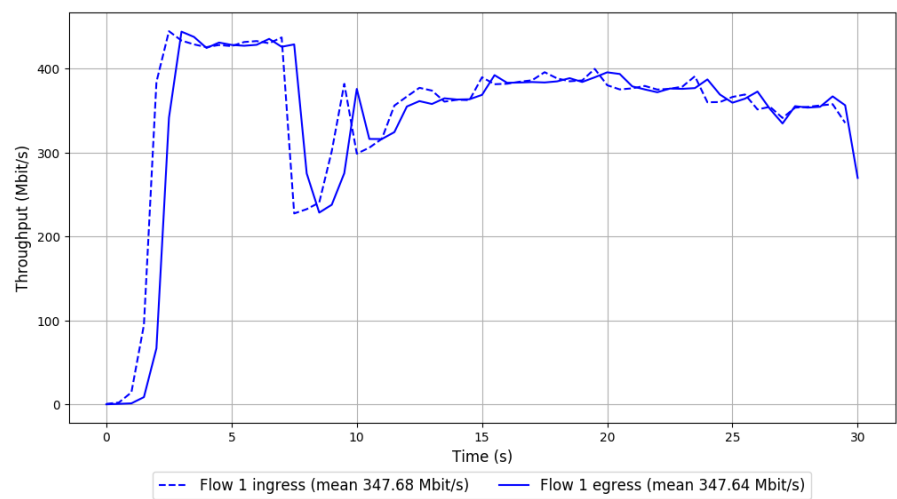
-- Flow 1:

Average throughput: 347.64 Mbit/s

95th percentile per-packet one-way delay: 92.377 ms

Loss rate: 0.59%

Run 5: Report of Copa — Data Link



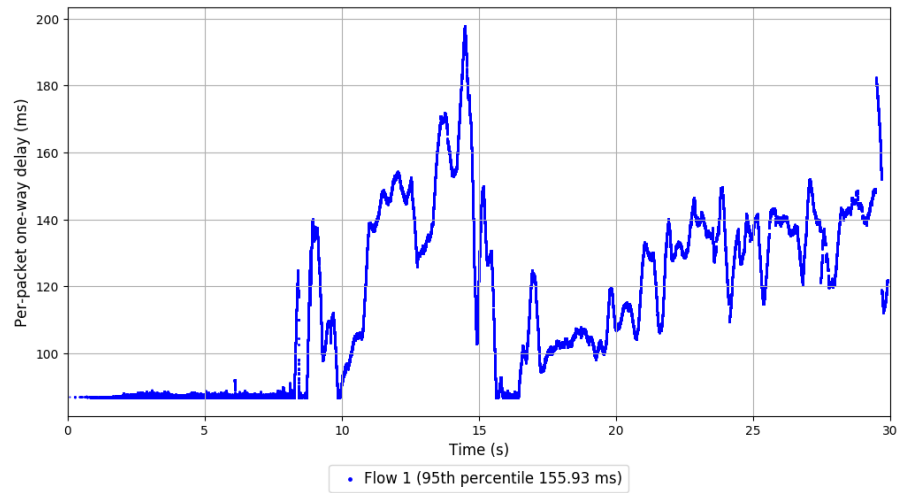
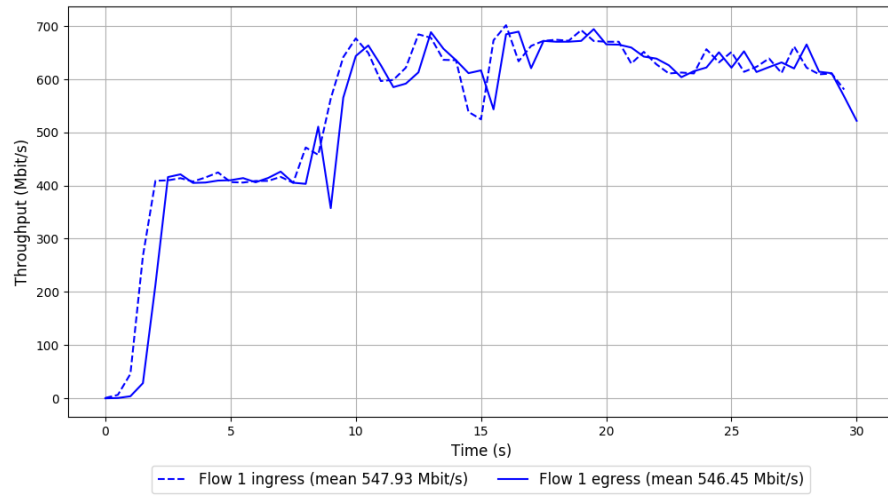


Run 1: Statistics of TCP Cubic

Start at: 2018-09-07 09:03:25  
End at: 2018-09-07 09:03:55  
Local clock offset: 28.519 ms  
Remote clock offset: 29.033 ms

# Below is generated by plot.py at 2018-09-07 11:26:02  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 546.45 Mbit/s  
95th percentile per-packet one-way delay: 155.932 ms  
Loss rate: 0.85%  
-- Flow 1:  
Average throughput: 546.45 Mbit/s  
95th percentile per-packet one-way delay: 155.932 ms  
Loss rate: 0.85%

### Run 1: Report of TCP Cubic — Data Link

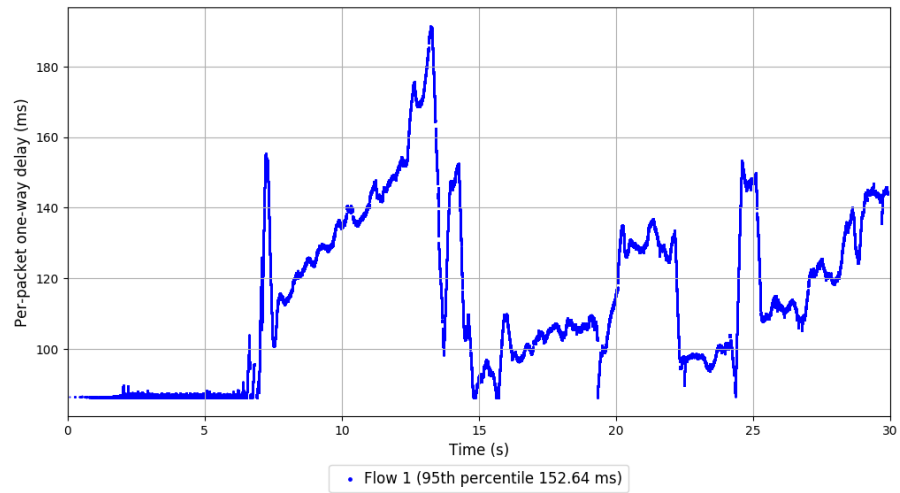
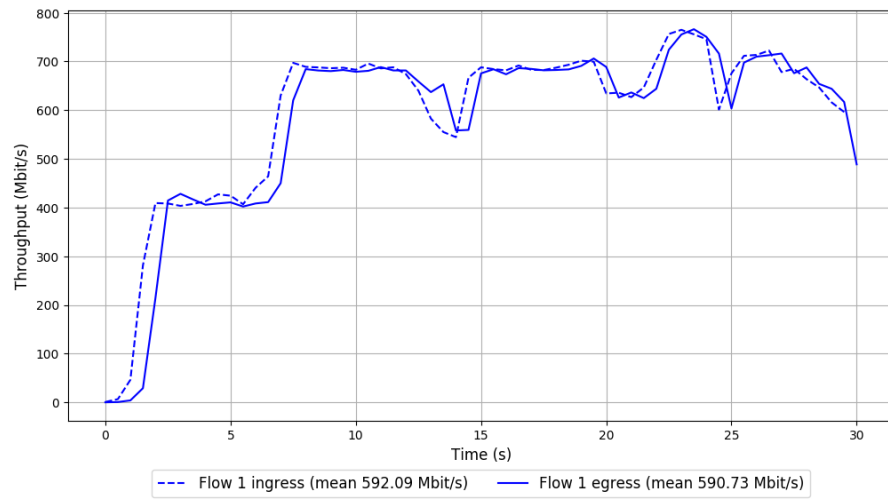


Run 2: Statistics of TCP Cubic

Start at: 2018-09-07 09:30:05  
End at: 2018-09-07 09:30:35  
Local clock offset: 9.532 ms  
Remote clock offset: 17.685 ms

# Below is generated by plot.py at 2018-09-07 11:26:02  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 590.73 Mbit/s  
95th percentile per-packet one-way delay: 152.637 ms  
Loss rate: 0.80%  
-- Flow 1:  
Average throughput: 590.73 Mbit/s  
95th percentile per-packet one-way delay: 152.637 ms  
Loss rate: 0.80%

## Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2018-09-07 09:56:40

End at: 2018-09-07 09:57:10

Local clock offset: 3.272 ms

Remote clock offset: 7.371 ms

# Below is generated by plot.py at 2018-09-07 11:26:02

# Datalink statistics

-- Total of 1 flow:

Average throughput: 592.71 Mbit/s

95th percentile per-packet one-way delay: 156.605 ms

Loss rate: 0.79%

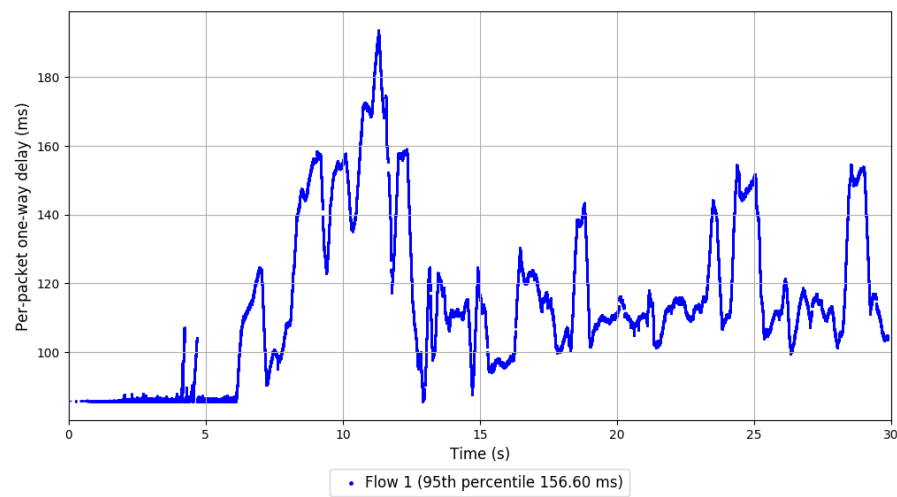
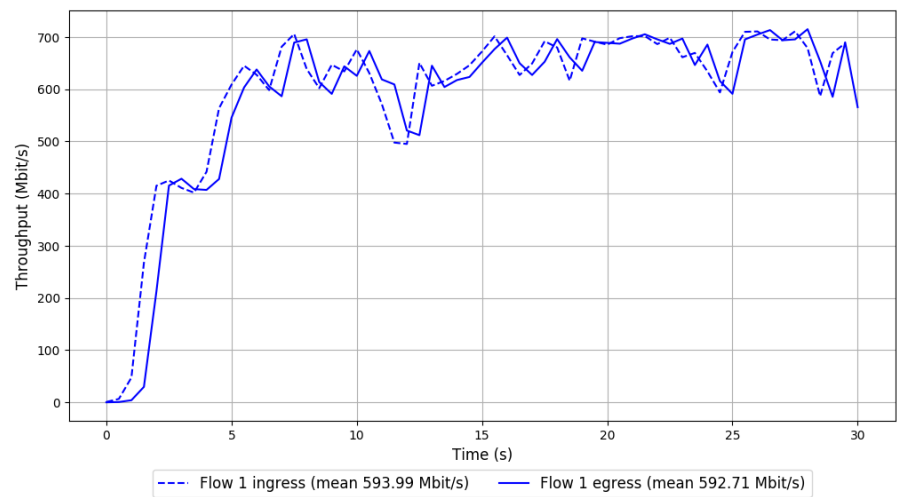
-- Flow 1:

Average throughput: 592.71 Mbit/s

95th percentile per-packet one-way delay: 156.605 ms

Loss rate: 0.79%

Run 3: Report of TCP Cubic — Data Link



Run 4: Statistics of TCP Cubic

Start at: 2018-09-07 10:23:04

End at: 2018-09-07 10:23:34

Local clock offset: 1.615 ms

Remote clock offset: 3.547 ms

# Below is generated by plot.py at 2018-09-07 11:26:02

# Datalink statistics

-- Total of 1 flow:

Average throughput: 527.48 Mbit/s

95th percentile per-packet one-way delay: 102.864 ms

Loss rate: 0.56%

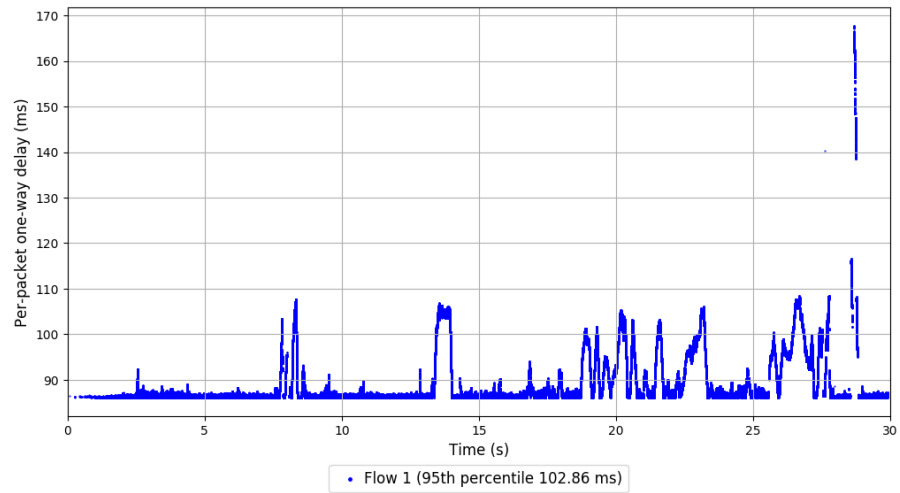
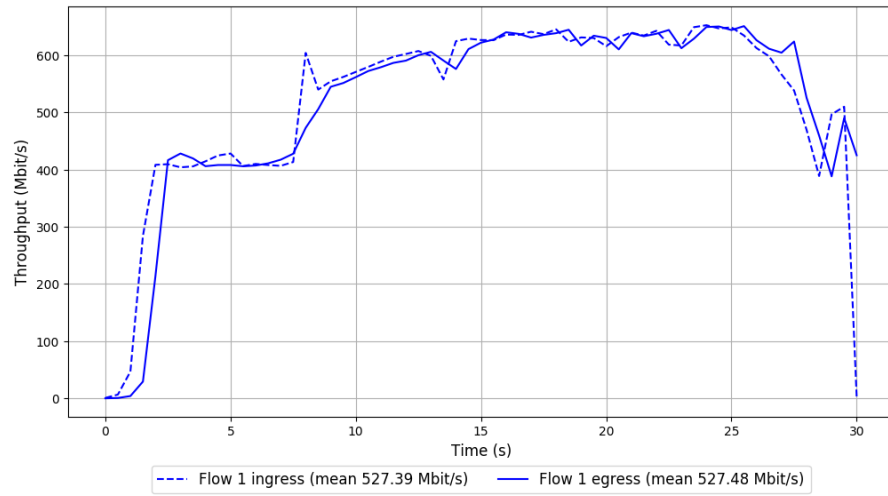
-- Flow 1:

Average throughput: 527.48 Mbit/s

95th percentile per-packet one-way delay: 102.864 ms

Loss rate: 0.56%

#### Run 4: Report of TCP Cubic — Data Link





Run 5: Statistics of TCP Cubic

Start at: 2018-09-07 10:49:40

End at: 2018-09-07 10:50:10

Local clock offset: 1.371 ms

Remote clock offset: 2.195 ms

# Below is generated by plot.py at 2018-09-07 11:27:08

# Datalink statistics

-- Total of 1 flow:

Average throughput: 632.20 Mbit/s

95th percentile per-packet one-way delay: 158.326 ms

Loss rate: 0.77%

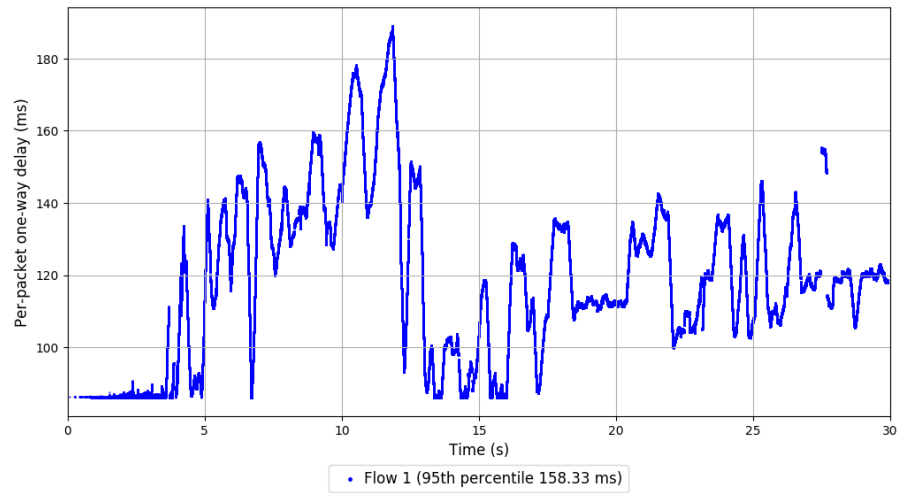
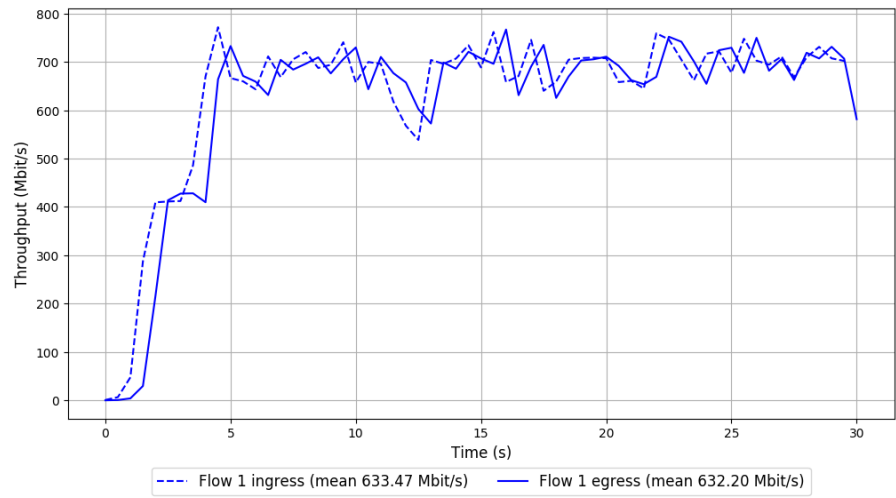
-- Flow 1:

Average throughput: 632.20 Mbit/s

95th percentile per-packet one-way delay: 158.326 ms

Loss rate: 0.77%

### Run 5: Report of TCP Cubic — Data Link

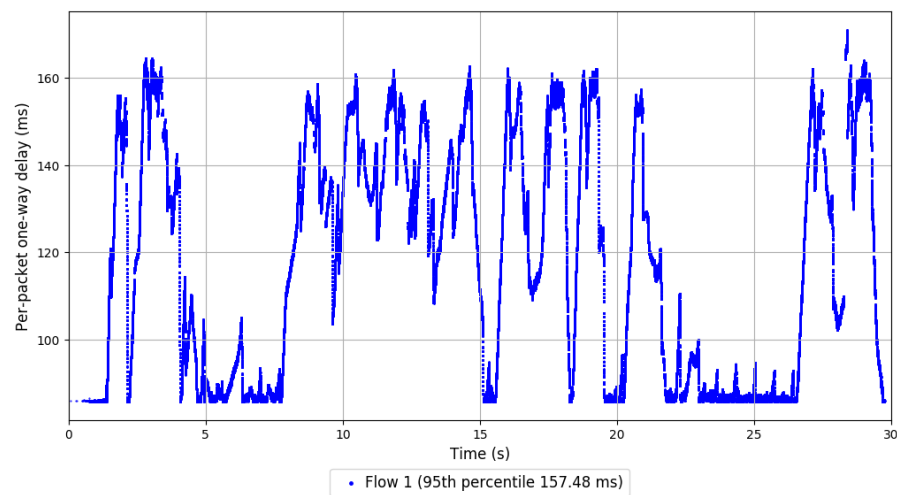
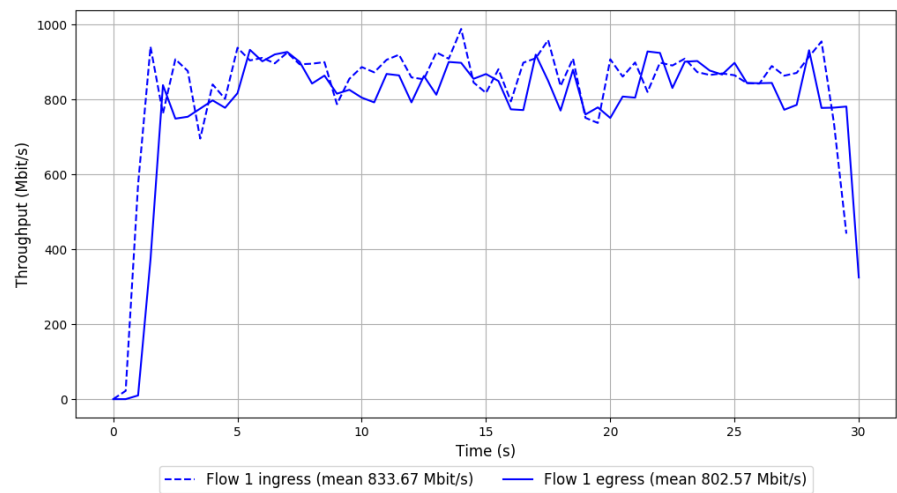


Run 1: Statistics of FillP

Start at: 2018-09-07 08:50:41  
End at: 2018-09-07 08:51:11  
Local clock offset: 30.435 ms  
Remote clock offset: 29.029 ms

# Below is generated by plot.py at 2018-09-07 11:32:34  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 802.57 Mbit/s  
95th percentile per-packet one-way delay: 157.479 ms  
Loss rate: 4.28%  
-- Flow 1:  
Average throughput: 802.57 Mbit/s  
95th percentile per-packet one-way delay: 157.479 ms  
Loss rate: 4.28%

Run 1: Report of FillP — Data Link

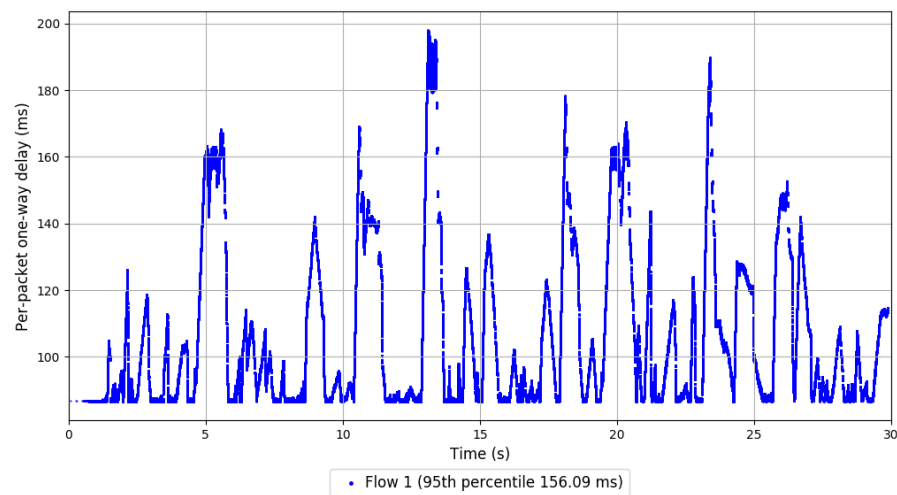
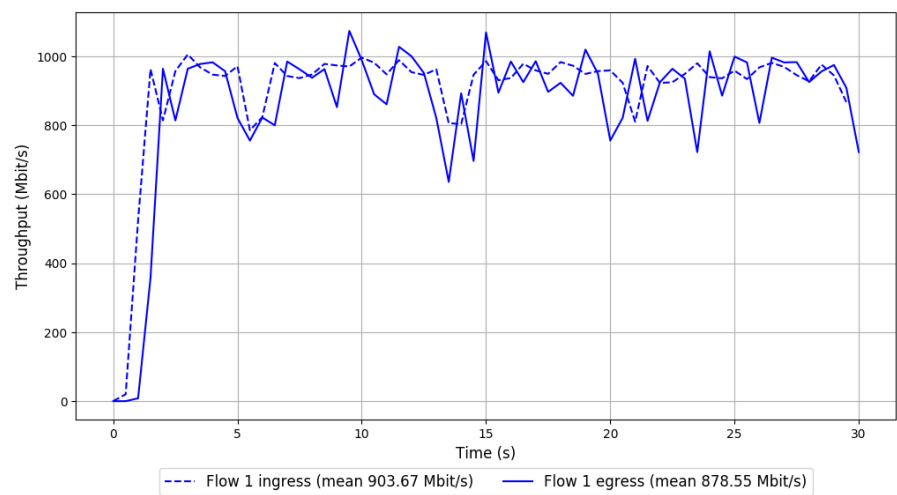


Run 2: Statistics of FillP

Start at: 2018-09-07 09:17:02  
End at: 2018-09-07 09:17:32  
Local clock offset: 10.393 ms  
Remote clock offset: 14.698 ms

# Below is generated by plot.py at 2018-09-07 11:42:34  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 878.55 Mbit/s  
95th percentile per-packet one-way delay: 156.087 ms  
Loss rate: 3.34%  
-- Flow 1:  
Average throughput: 878.55 Mbit/s  
95th percentile per-packet one-way delay: 156.087 ms  
Loss rate: 3.34%

Run 2: Report of FillP — Data Link



Run 3: Statistics of FillP

Start at: 2018-09-07 09:43:39

End at: 2018-09-07 09:44:09

Local clock offset: 4.546 ms

Remote clock offset: 9.168 ms

# Below is generated by plot.py at 2018-09-07 11:42:34

# Datalink statistics

-- Total of 1 flow:

Average throughput: 840.79 Mbit/s

95th percentile per-packet one-way delay: 151.904 ms

Loss rate: 3.94%

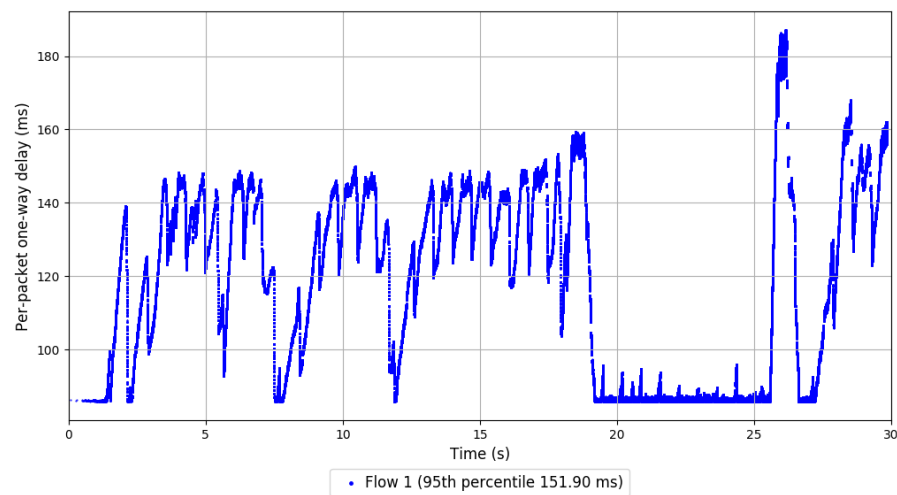
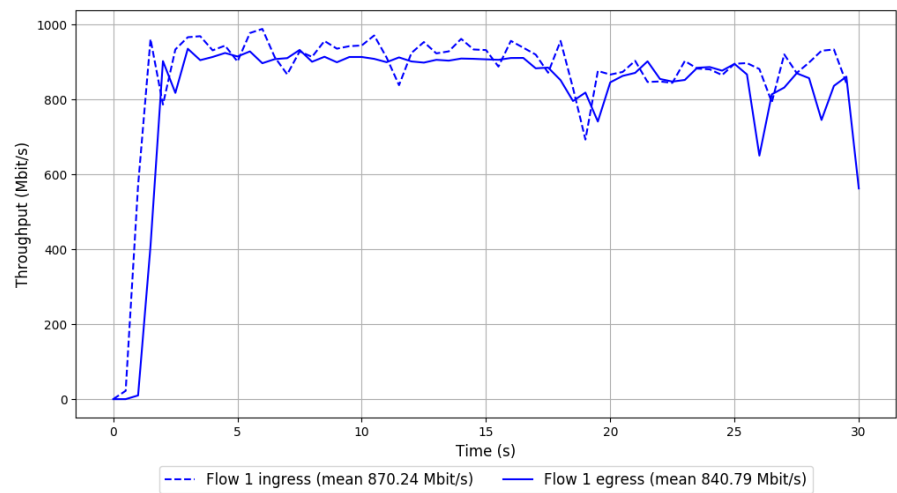
-- Flow 1:

Average throughput: 840.79 Mbit/s

95th percentile per-packet one-way delay: 151.904 ms

Loss rate: 3.94%

Run 3: Report of FillP — Data Link





Run 4: Statistics of FillP

Start at: 2018-09-07 10:10:10

End at: 2018-09-07 10:10:40

Local clock offset: 3.756 ms

Remote clock offset: 8.012 ms

# Below is generated by plot.py at 2018-09-07 11:43:37

# Datalink statistics

-- Total of 1 flow:

Average throughput: 906.82 Mbit/s

95th percentile per-packet one-way delay: 142.403 ms

Loss rate: 2.03%

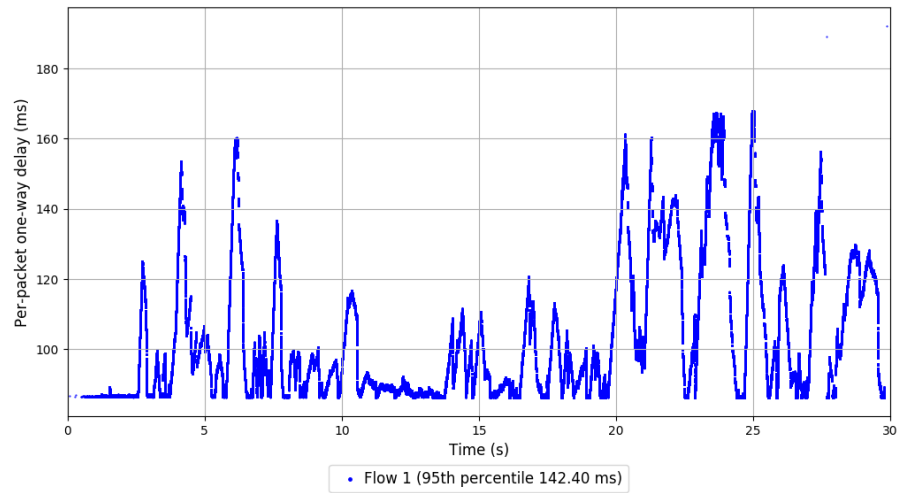
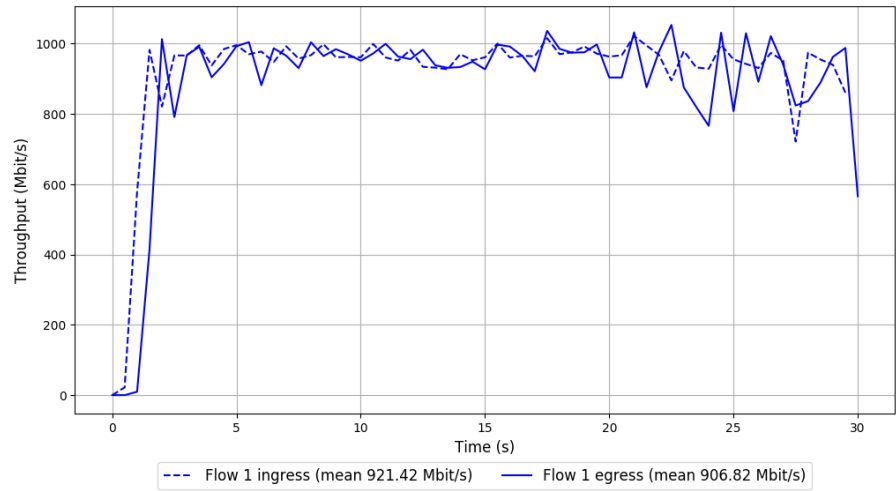
-- Flow 1:

Average throughput: 906.82 Mbit/s

95th percentile per-packet one-way delay: 142.403 ms

Loss rate: 2.03%

#### Run 4: Report of FillP — Data Link



Run 5: Statistics of FillP

Start at: 2018-09-07 10:36:38

End at: 2018-09-07 10:37:08

Local clock offset: 1.764 ms

Remote clock offset: 3.951 ms

# Below is generated by plot.py at 2018-09-07 11:43:37

# Datalink statistics

-- Total of 1 flow:

Average throughput: 834.02 Mbit/s

95th percentile per-packet one-way delay: 155.502 ms

Loss rate: 3.57%

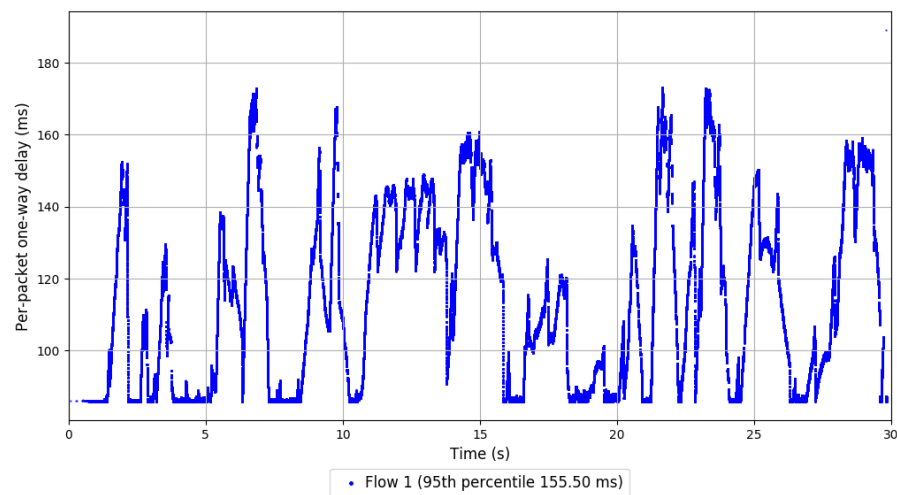
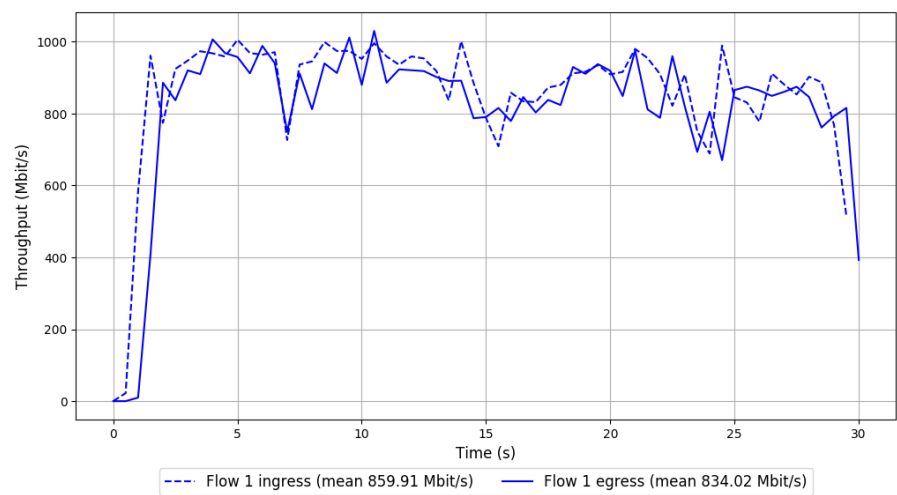
-- Flow 1:

Average throughput: 834.02 Mbit/s

95th percentile per-packet one-way delay: 155.502 ms

Loss rate: 3.57%

Run 5: Report of FillP — Data Link



Run 1: Statistics of FillP-Sheep

Start at: 2018-09-07 08:47:53

End at: 2018-09-07 08:48:23

Local clock offset: 27.605 ms

Remote clock offset: 26.5 ms

# Below is generated by plot.py at 2018-09-07 11:43:37

# Datalink statistics

-- Total of 1 flow:

Average throughput: 794.98 Mbit/s

95th percentile per-packet one-way delay: 150.625 ms

Loss rate: 1.67%

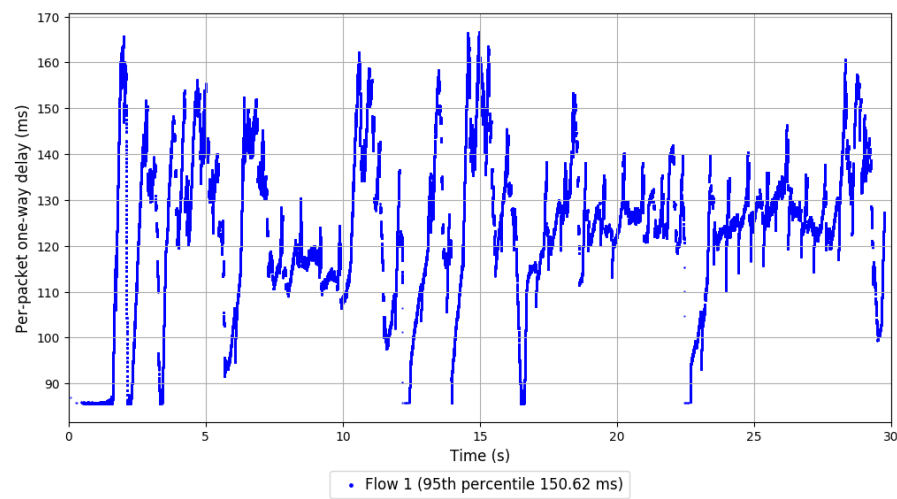
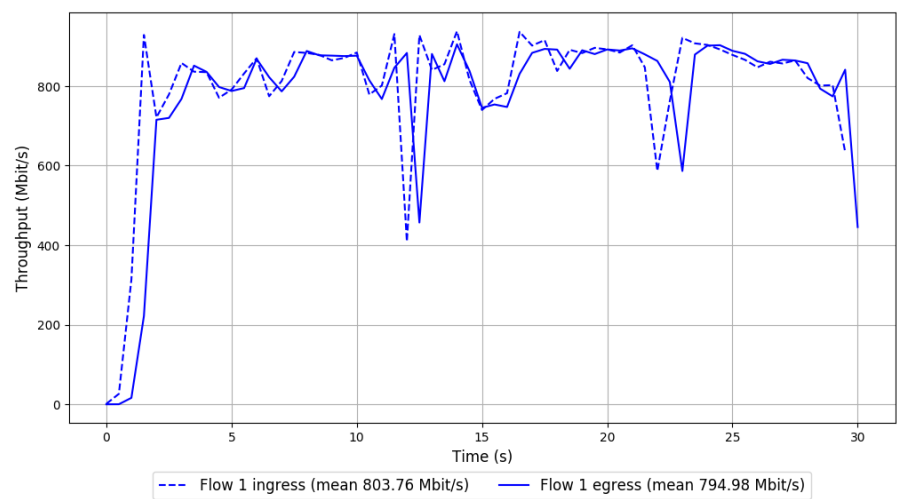
-- Flow 1:

Average throughput: 794.98 Mbit/s

95th percentile per-packet one-way delay: 150.625 ms

Loss rate: 1.67%

Run 1: Report of FillP-Sheep — Data Link

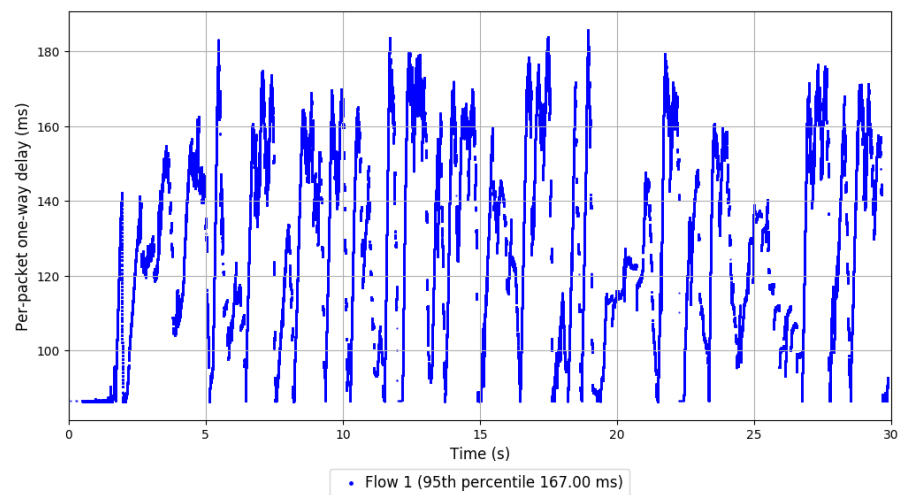
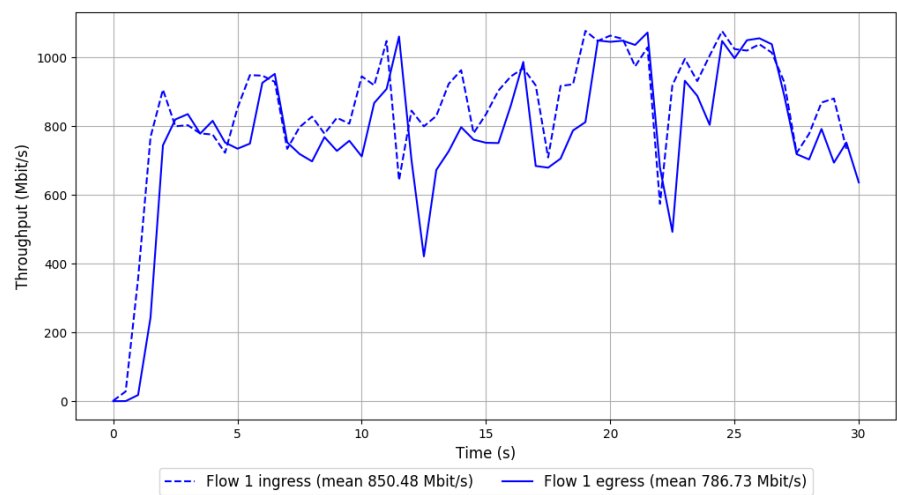


Run 2: Statistics of FillP-Sheep

Start at: 2018-09-07 09:14:12  
End at: 2018-09-07 09:14:42  
Local clock offset: 11.595 ms  
Remote clock offset: 15.352 ms

# Below is generated by plot.py at 2018-09-07 11:43:37  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 786.73 Mbit/s  
95th percentile per-packet one-way delay: 167.003 ms  
Loss rate: 8.03%  
-- Flow 1:  
Average throughput: 786.73 Mbit/s  
95th percentile per-packet one-way delay: 167.003 ms  
Loss rate: 8.03%

Run 2: Report of FillP-Sheep — Data Link





Run 3: Statistics of FillP-Sheep

Start at: 2018-09-07 09:40:47

End at: 2018-09-07 09:41:17

Local clock offset: 5.745 ms

Remote clock offset: 11.07 ms

# Below is generated by plot.py at 2018-09-07 11:45:03

# Datalink statistics

-- Total of 1 flow:

Average throughput: 859.53 Mbit/s

95th percentile per-packet one-way delay: 143.944 ms

Loss rate: 2.28%

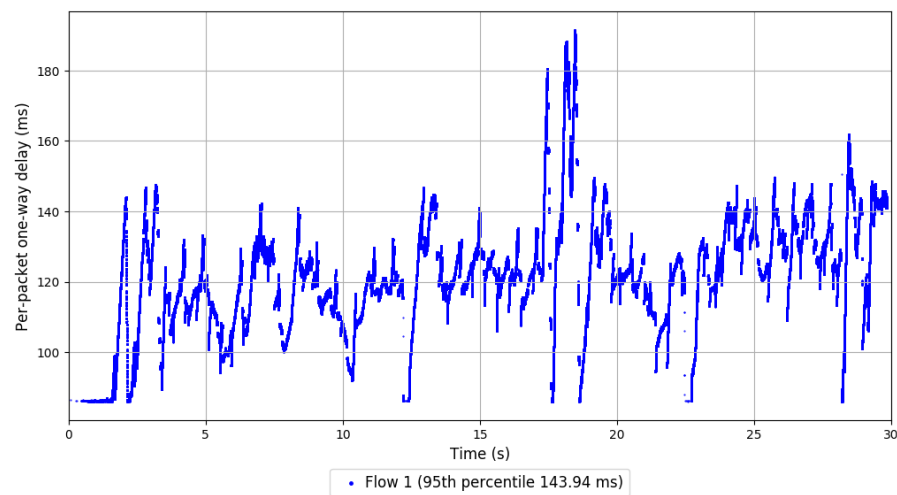
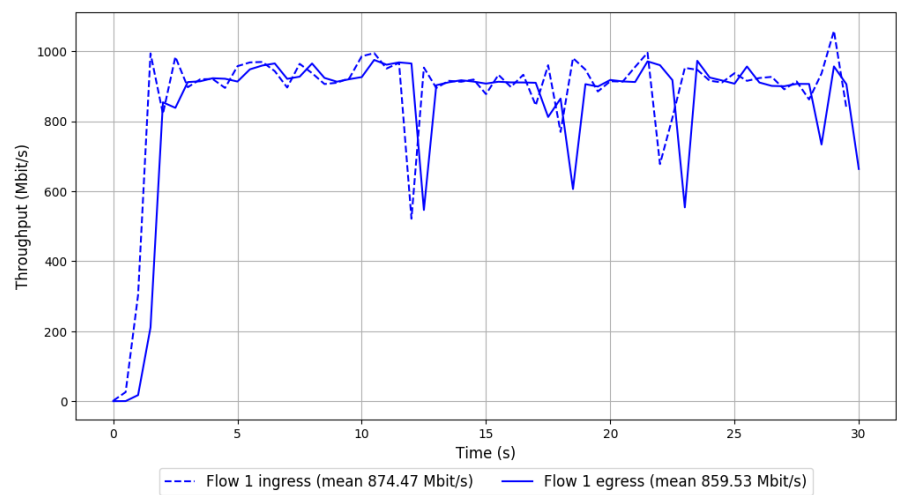
-- Flow 1:

Average throughput: 859.53 Mbit/s

95th percentile per-packet one-way delay: 143.944 ms

Loss rate: 2.28%

Run 3: Report of FillP-Sheep — Data Link



Run 4: Statistics of FillP-Sheep

Start at: 2018-09-07 10:07:20

End at: 2018-09-07 10:07:50

Local clock offset: 4.161 ms

Remote clock offset: 9.147 ms

# Below is generated by plot.py at 2018-09-07 11:51:18

# Datalink statistics

-- Total of 1 flow:

Average throughput: 789.42 Mbit/s

95th percentile per-packet one-way delay: 162.496 ms

Loss rate: 5.56%

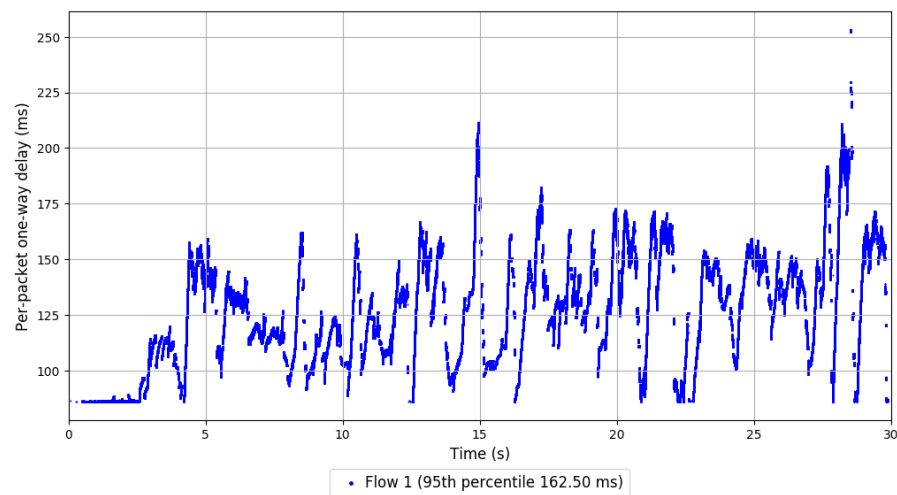
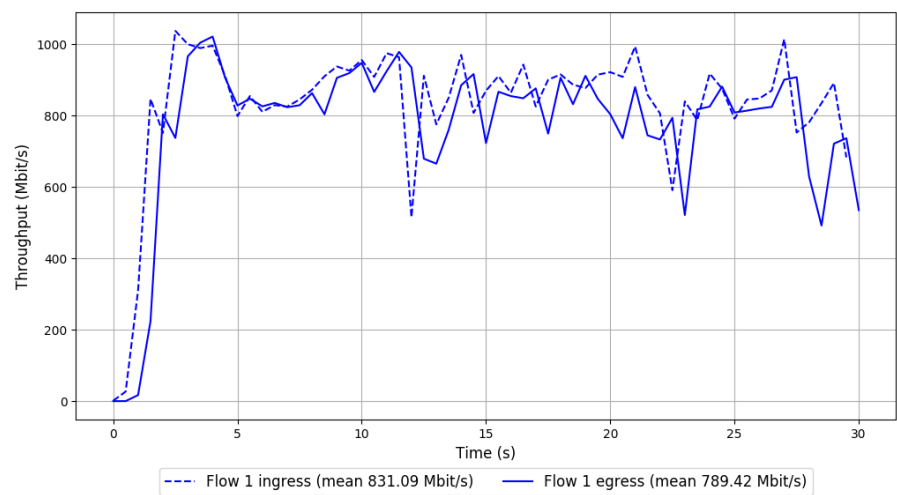
-- Flow 1:

Average throughput: 789.42 Mbit/s

95th percentile per-packet one-way delay: 162.496 ms

Loss rate: 5.56%

Run 4: Report of FillP-Sheep — Data Link



Run 5: Statistics of FillP-Sheep

Start at: 2018-09-07 10:33:51

End at: 2018-09-07 10:34:21

Local clock offset: 1.754 ms

Remote clock offset: 3.668 ms

# Below is generated by plot.py at 2018-09-07 11:58:01

# Datalink statistics

-- Total of 1 flow:

Average throughput: 755.16 Mbit/s

95th percentile per-packet one-way delay: 171.180 ms

Loss rate: 5.15%

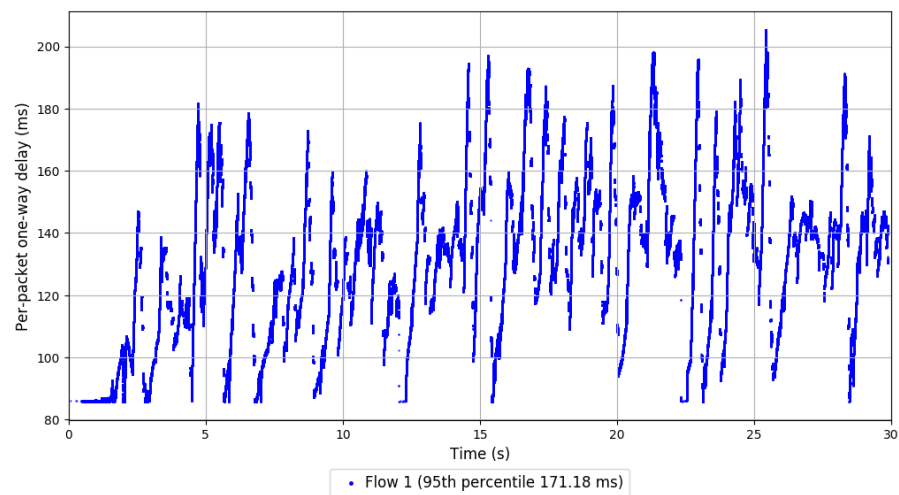
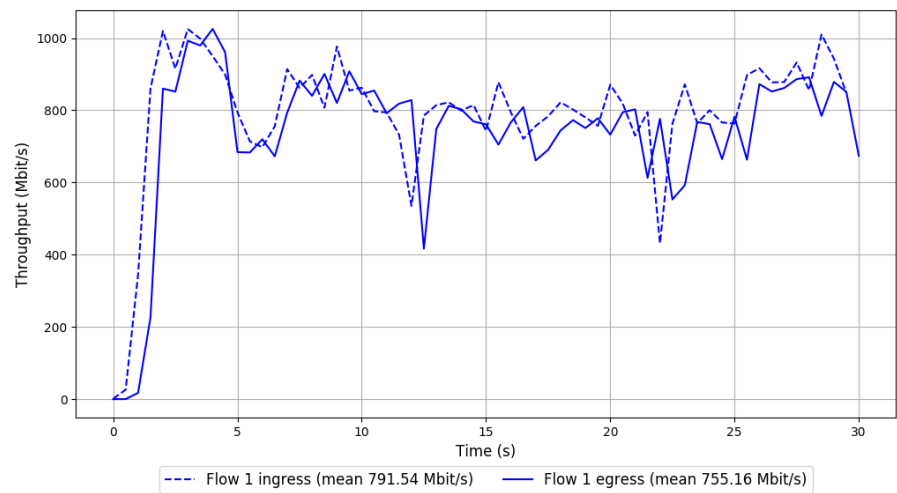
-- Flow 1:

Average throughput: 755.16 Mbit/s

95th percentile per-packet one-way delay: 171.180 ms

Loss rate: 5.15%

Run 5: Report of FillP-Sheep — Data Link

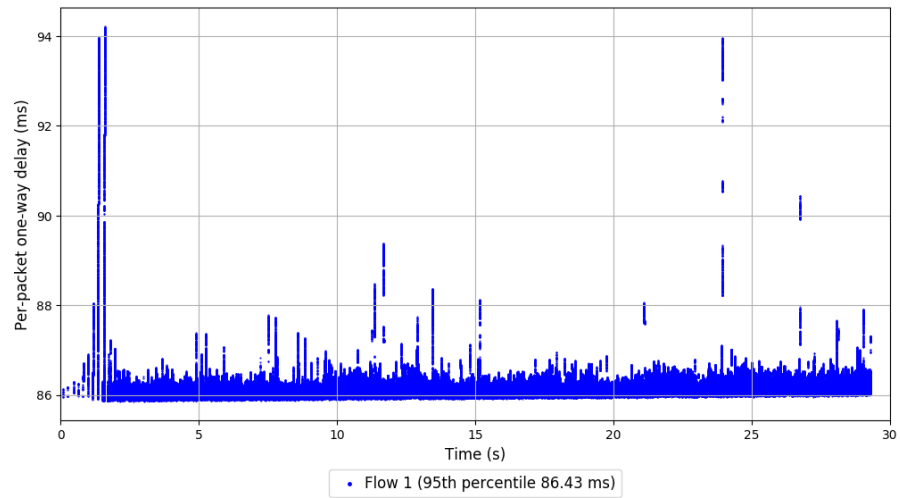
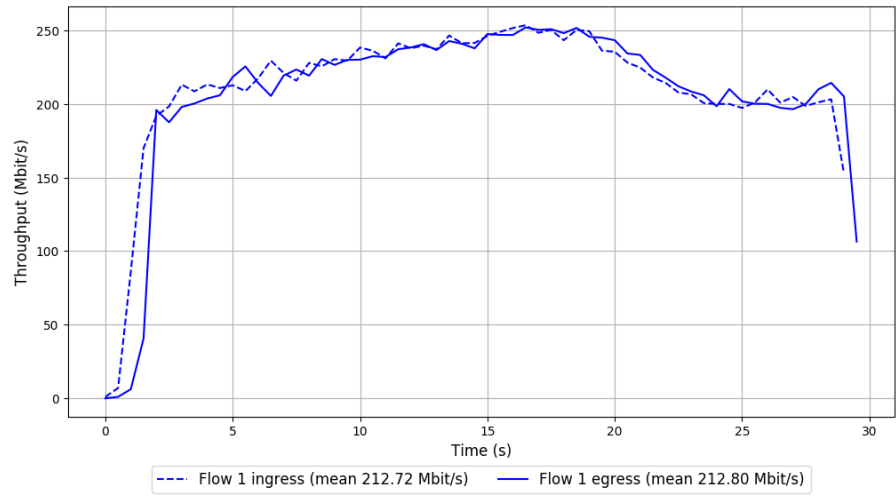


Run 1: Statistics of Indigo

Start at: 2018-09-07 09:09:27  
End at: 2018-09-07 09:09:57  
Local clock offset: 15.981 ms  
Remote clock offset: 18.449 ms

# Below is generated by plot.py at 2018-09-07 11:58:01  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 212.80 Mbit/s  
95th percentile per-packet one-way delay: 86.428 ms  
Loss rate: 0.55%  
-- Flow 1:  
Average throughput: 212.80 Mbit/s  
95th percentile per-packet one-way delay: 86.428 ms  
Loss rate: 0.55%

### Run 1: Report of Indigo — Data Link





Run 2: Statistics of Indigo

Start at: 2018-09-07 09:36:04

End at: 2018-09-07 09:36:34

Local clock offset: 8.726 ms

Remote clock offset: 16.674 ms

# Below is generated by plot.py at 2018-09-07 11:58:01

# Datalink statistics

-- Total of 1 flow:

Average throughput: 215.80 Mbit/s

95th percentile per-packet one-way delay: 86.224 ms

Loss rate: 0.54%

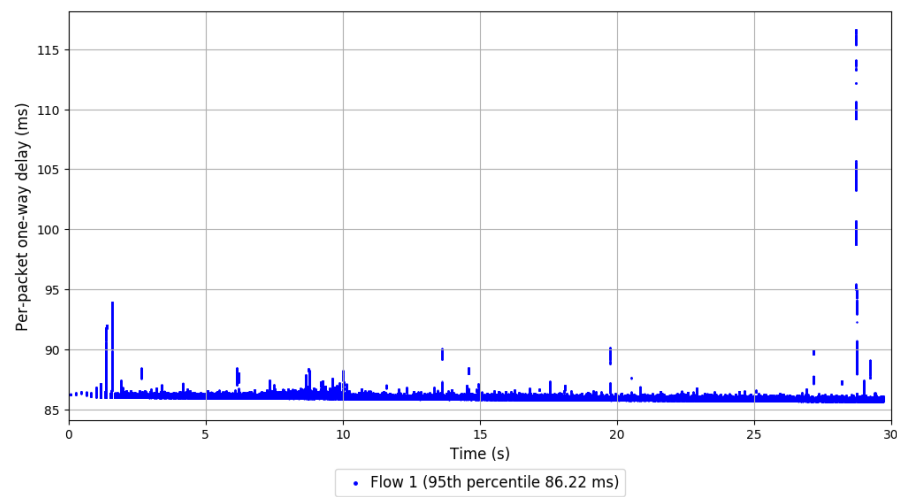
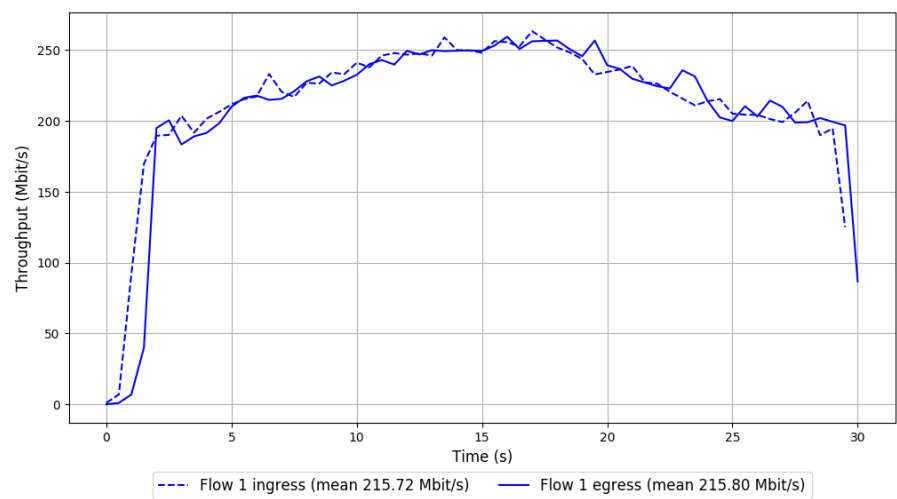
-- Flow 1:

Average throughput: 215.80 Mbit/s

95th percentile per-packet one-way delay: 86.224 ms

Loss rate: 0.54%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2018-09-07 10:02:32

End at: 2018-09-07 10:03:02

Local clock offset: 3.937 ms

Remote clock offset: 8.239 ms

# Below is generated by plot.py at 2018-09-07 11:58:01

# Datalink statistics

-- Total of 1 flow:

Average throughput: 215.95 Mbit/s

95th percentile per-packet one-way delay: 87.138 ms

Loss rate: 0.55%

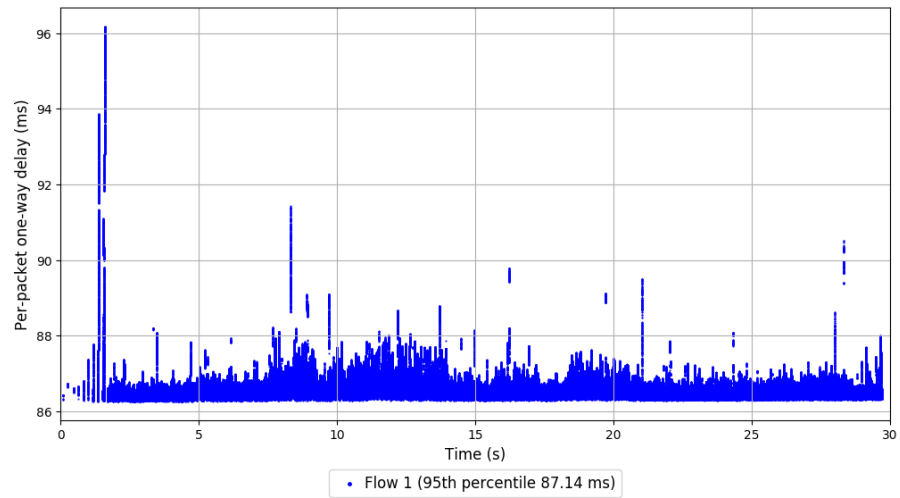
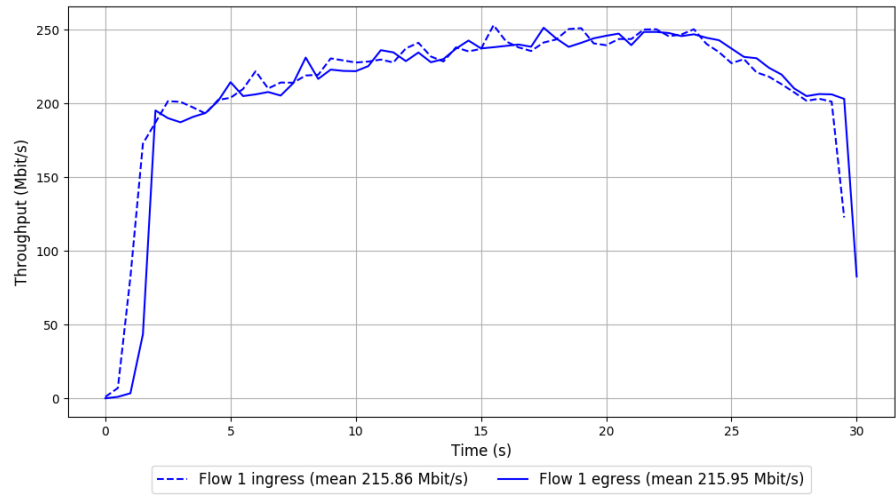
-- Flow 1:

Average throughput: 215.95 Mbit/s

95th percentile per-packet one-way delay: 87.138 ms

Loss rate: 0.55%

### Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2018-09-07 10:29:00

End at: 2018-09-07 10:29:30

Local clock offset: 1.778 ms

Remote clock offset: 3.438 ms

# Below is generated by plot.py at 2018-09-07 11:58:01

# Datalink statistics

-- Total of 1 flow:

Average throughput: 221.33 Mbit/s

95th percentile per-packet one-way delay: 86.114 ms

Loss rate: 0.55%

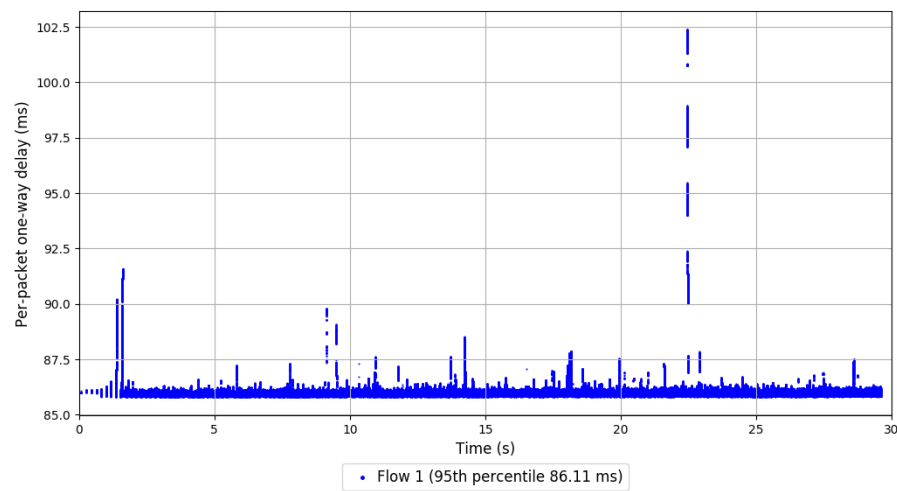
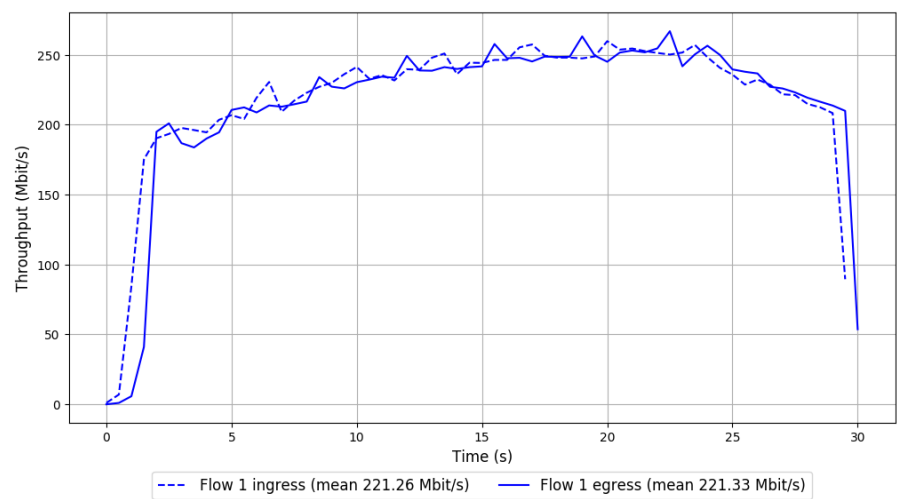
-- Flow 1:

Average throughput: 221.33 Mbit/s

95th percentile per-packet one-way delay: 86.114 ms

Loss rate: 0.55%

Run 4: Report of Indigo — Data Link



Run 5: Statistics of Indigo

Start at: 2018-09-07 10:55:36

End at: 2018-09-07 10:56:06

Local clock offset: 0.81 ms

Remote clock offset: 1.388 ms

# Below is generated by plot.py at 2018-09-07 11:58:01

# Datalink statistics

-- Total of 1 flow:

Average throughput: 217.22 Mbit/s

95th percentile per-packet one-way delay: 86.673 ms

Loss rate: 0.54%

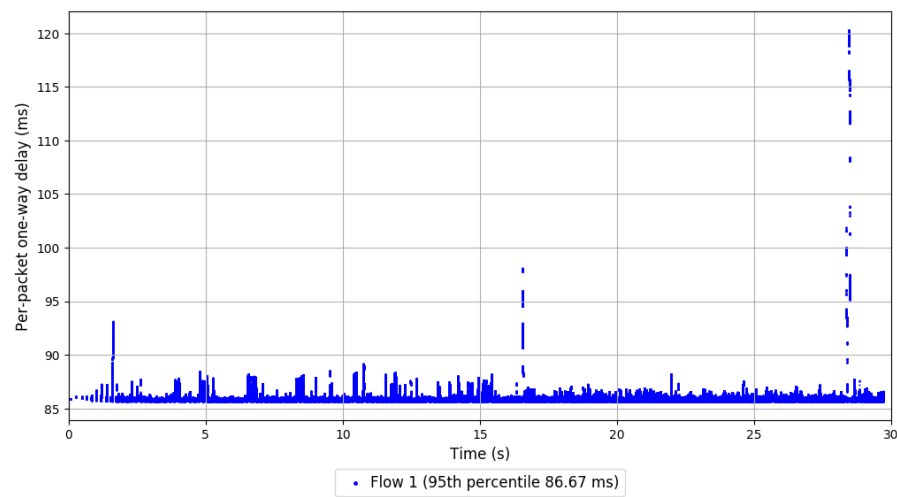
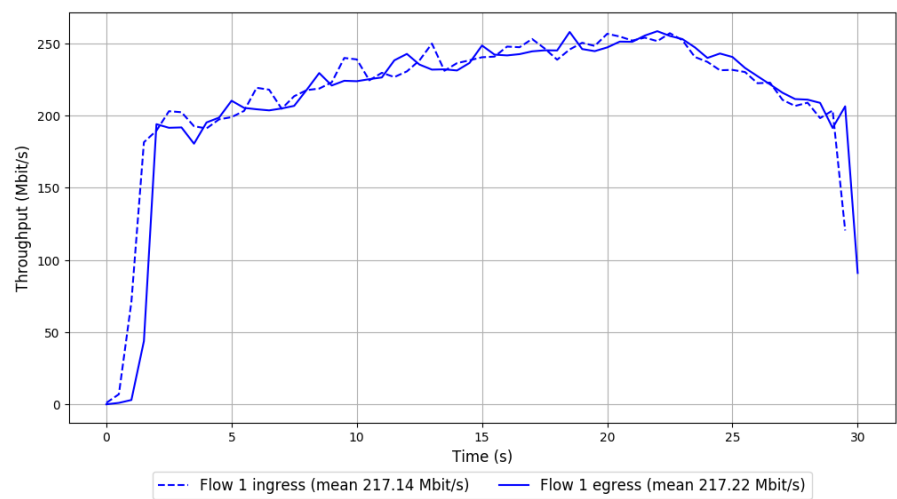
-- Flow 1:

Average throughput: 217.22 Mbit/s

95th percentile per-packet one-way delay: 86.673 ms

Loss rate: 0.54%

Run 5: Report of Indigo — Data Link



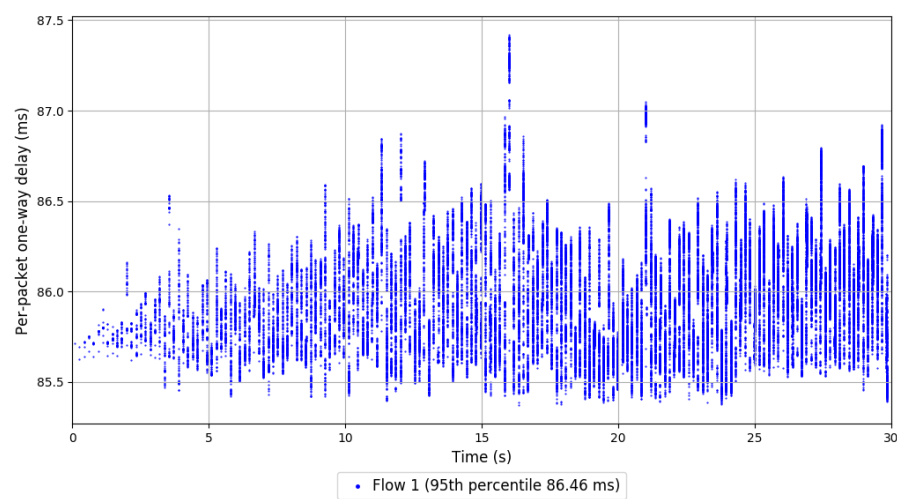
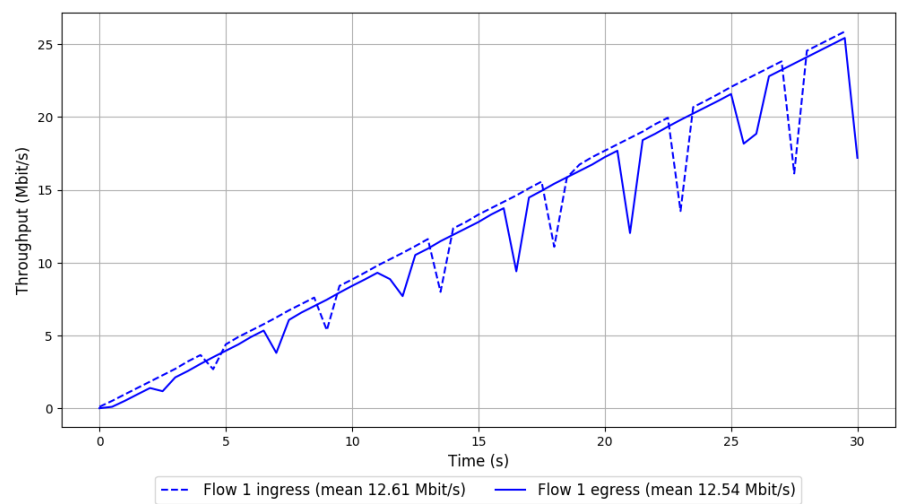


Run 1: Statistics of LEDBAT

Start at: 2018-09-07 08:58:09  
End at: 2018-09-07 08:58:39  
Local clock offset: 37.906 ms  
Remote clock offset: 36.661 ms

# Below is generated by plot.py at 2018-09-07 11:58:01  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 12.54 Mbit/s  
95th percentile per-packet one-way delay: 86.463 ms  
Loss rate: 1.15%  
-- Flow 1:  
Average throughput: 12.54 Mbit/s  
95th percentile per-packet one-way delay: 86.463 ms  
Loss rate: 1.15%

Run 1: Report of LEDBAT — Data Link

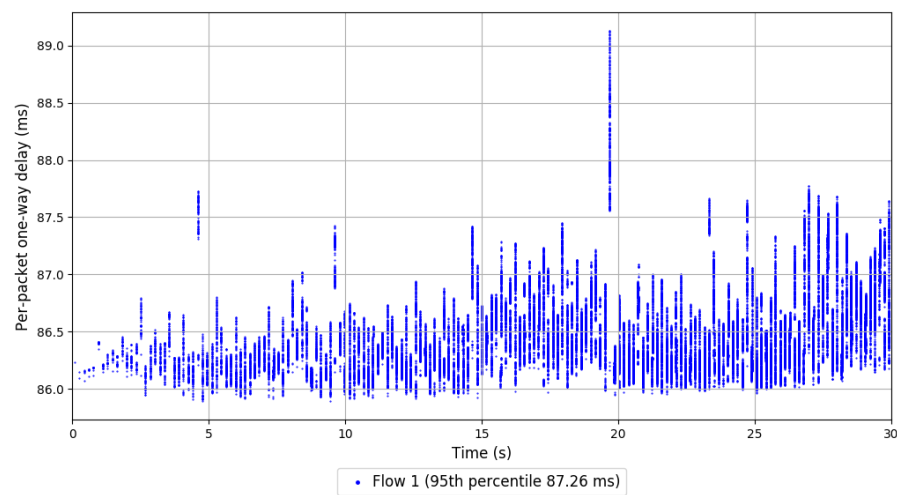
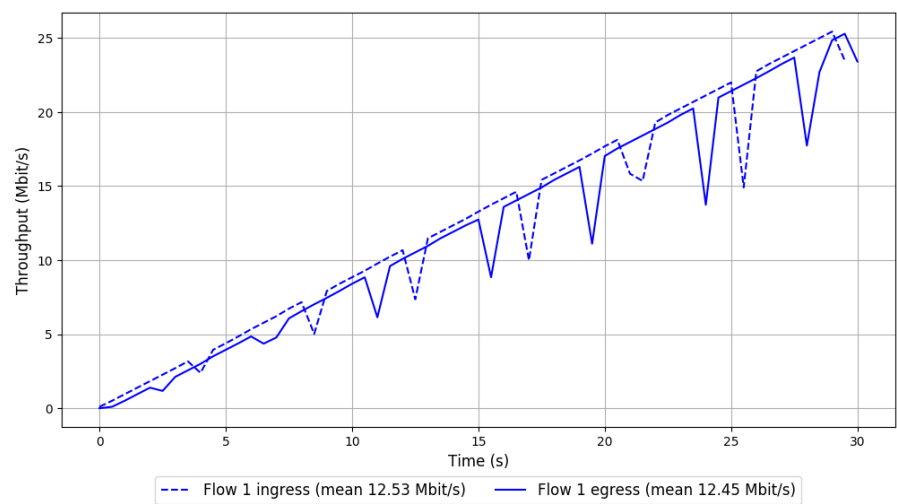


Run 2: Statistics of LEDBAT

Start at: 2018-09-07 09:24:34  
End at: 2018-09-07 09:25:05  
Local clock offset: 9.09 ms  
Remote clock offset: 15.689 ms

# Below is generated by plot.py at 2018-09-07 11:58:01  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 12.45 Mbit/s  
95th percentile per-packet one-way delay: 87.258 ms  
Loss rate: 1.14%  
-- Flow 1:  
Average throughput: 12.45 Mbit/s  
95th percentile per-packet one-way delay: 87.258 ms  
Loss rate: 1.14%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2018-09-07 09:51:10

End at: 2018-09-07 09:51:40

Local clock offset: 3.473 ms

Remote clock offset: 7.216 ms

# Below is generated by plot.py at 2018-09-07 11:58:01

# Datalink statistics

-- Total of 1 flow:

Average throughput: 12.53 Mbit/s

95th percentile per-packet one-way delay: 87.111 ms

Loss rate: 1.15%

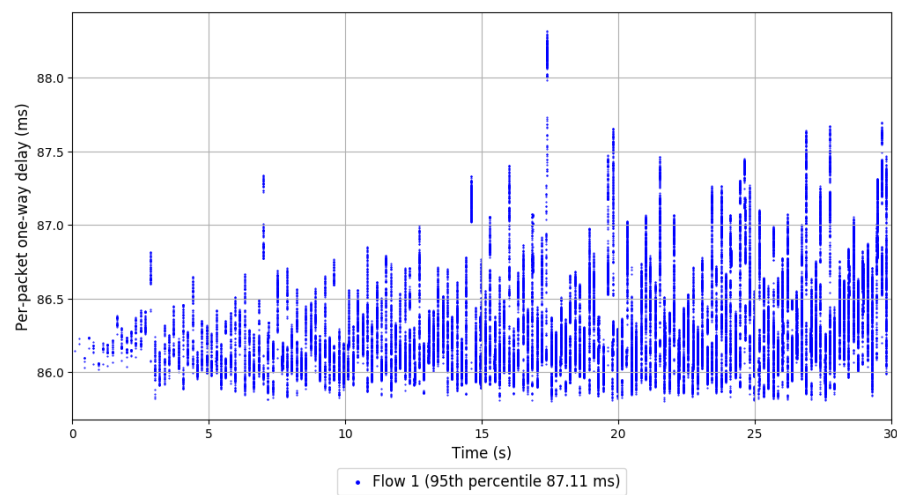
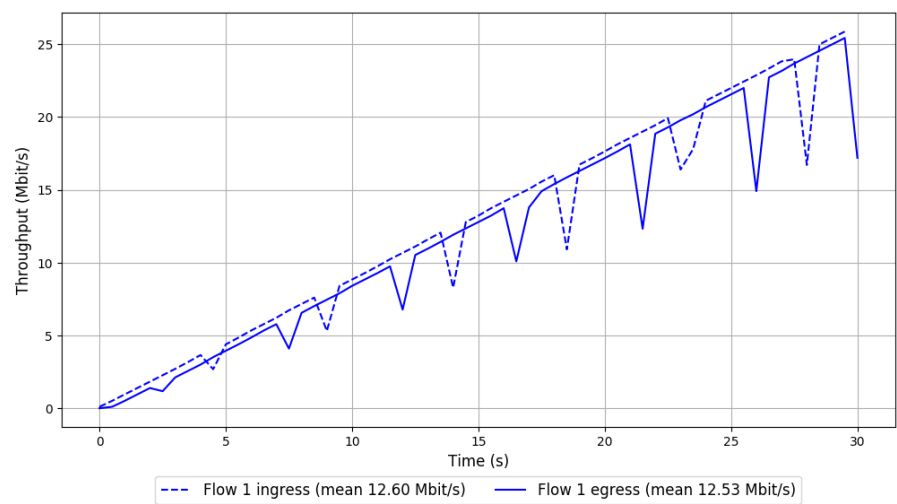
-- Flow 1:

Average throughput: 12.53 Mbit/s

95th percentile per-packet one-way delay: 87.111 ms

Loss rate: 1.15%

Run 3: Report of LEDBAT — Data Link



Run 4: Statistics of LEDBAT

Start at: 2018-09-07 10:17:37

End at: 2018-09-07 10:18:07

Local clock offset: 1.939 ms

Remote clock offset: 4.433 ms

# Below is generated by plot.py at 2018-09-07 11:58:01

# Datalink statistics

-- Total of 1 flow:

Average throughput: 12.55 Mbit/s

95th percentile per-packet one-way delay: 86.899 ms

Loss rate: 1.15%

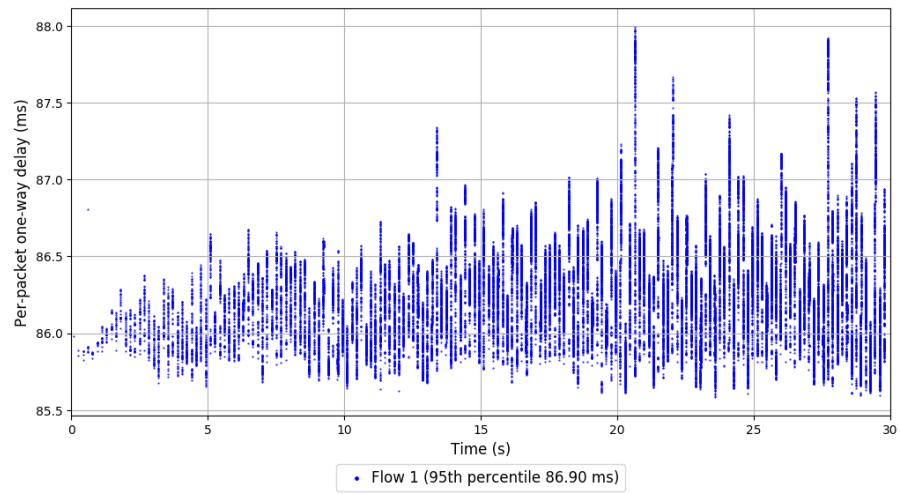
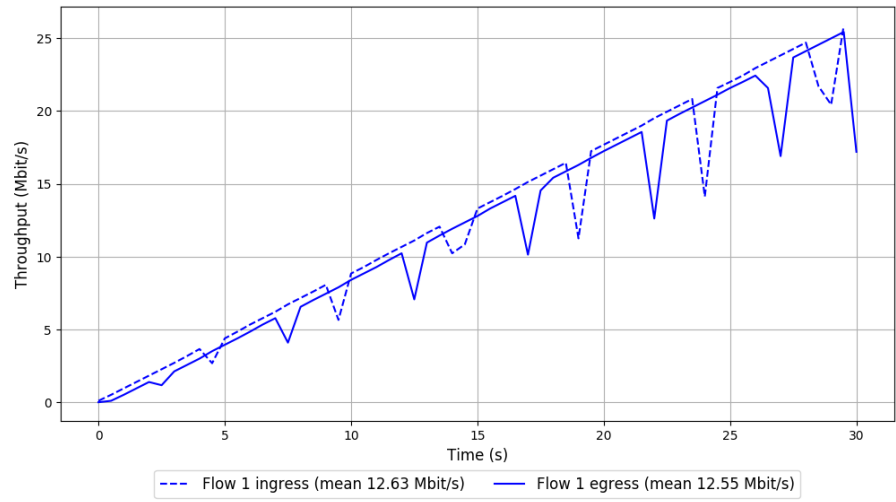
-- Flow 1:

Average throughput: 12.55 Mbit/s

95th percentile per-packet one-way delay: 86.899 ms

Loss rate: 1.15%

#### Run 4: Report of LEDBAT — Data Link





Run 5: Statistics of LEDBAT

Start at: 2018-09-07 10:44:10

End at: 2018-09-07 10:44:40

Local clock offset: 1.685 ms

Remote clock offset: 3.805 ms

# Below is generated by plot.py at 2018-09-07 11:58:01

# Datalink statistics

-- Total of 1 flow:

Average throughput: 12.55 Mbit/s

95th percentile per-packet one-way delay: 86.666 ms

Loss rate: 1.15%

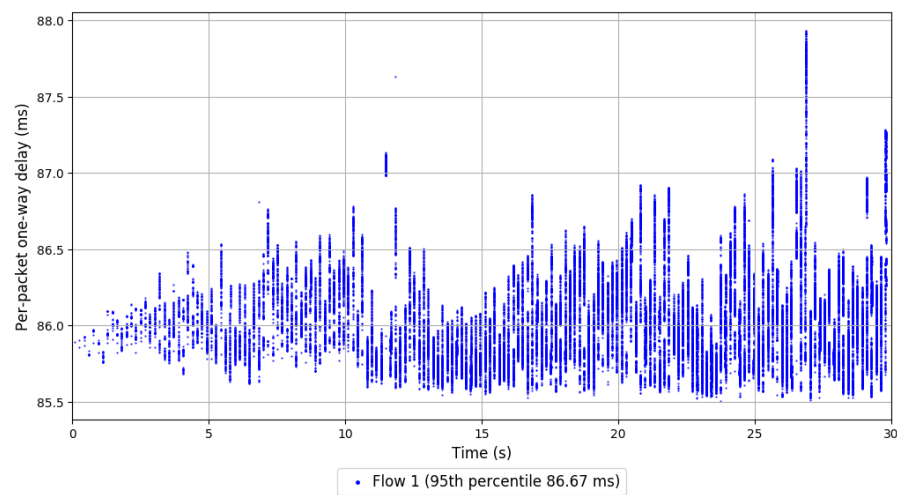
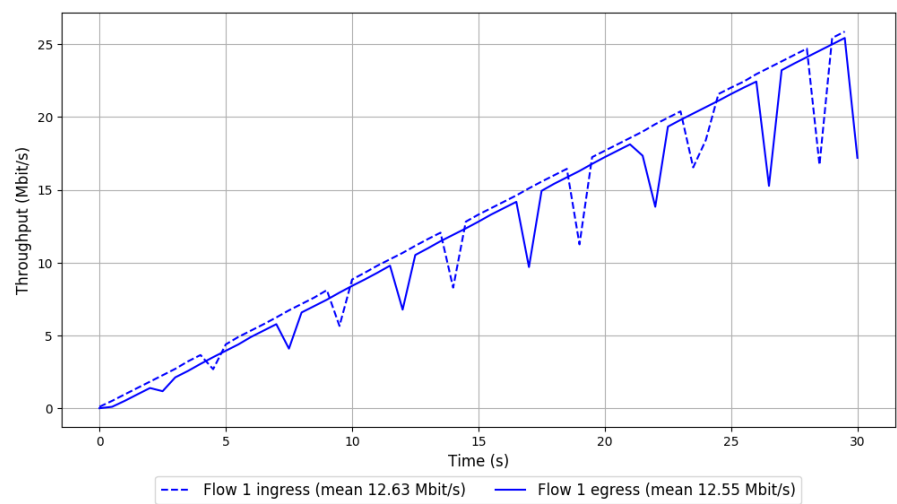
-- Flow 1:

Average throughput: 12.55 Mbit/s

95th percentile per-packet one-way delay: 86.666 ms

Loss rate: 1.15%

Run 5: Report of LEDBAT — Data Link

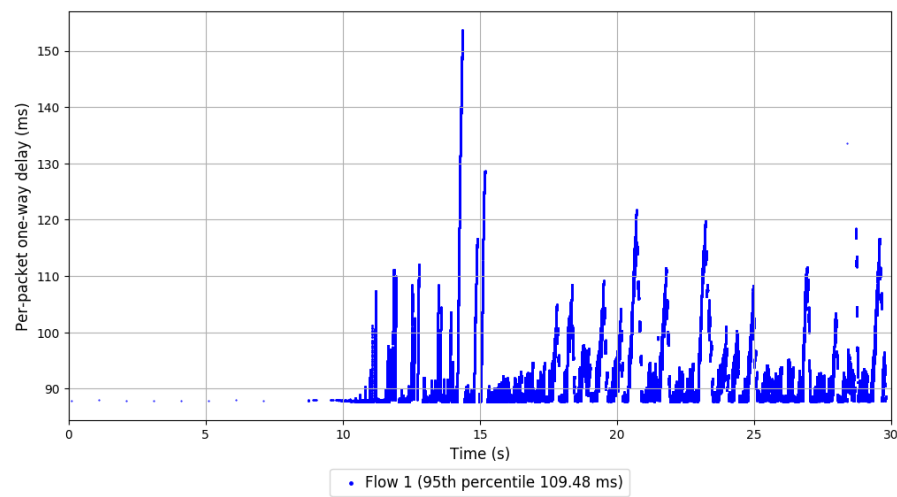
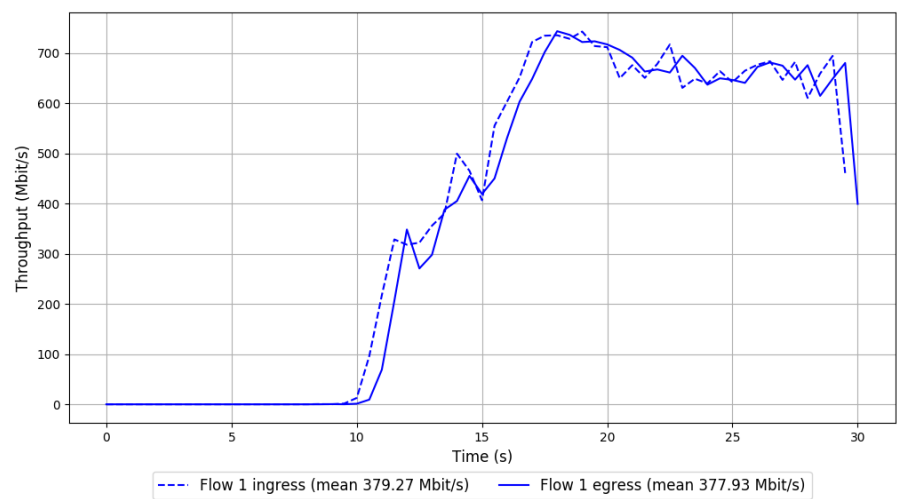


```
Run 1: Statistics of Indigo-Muses

Start at: 2018-09-07 09:00:30
End at: 2018-09-07 09:01:00
Local clock offset: 39.078 ms
Remote clock offset: 38.0 ms

# Below is generated by plot.py at 2018-09-07 11:58:01
# Datalink statistics
-- Total of 1 flow:
Average throughput: 377.93 Mbit/s
95th percentile per-packet one-way delay: 109.480 ms
Loss rate: 0.93%
-- Flow 1:
Average throughput: 377.93 Mbit/s
95th percentile per-packet one-way delay: 109.480 ms
Loss rate: 0.93%
```

Run 1: Report of Indigo-Muses — Data Link

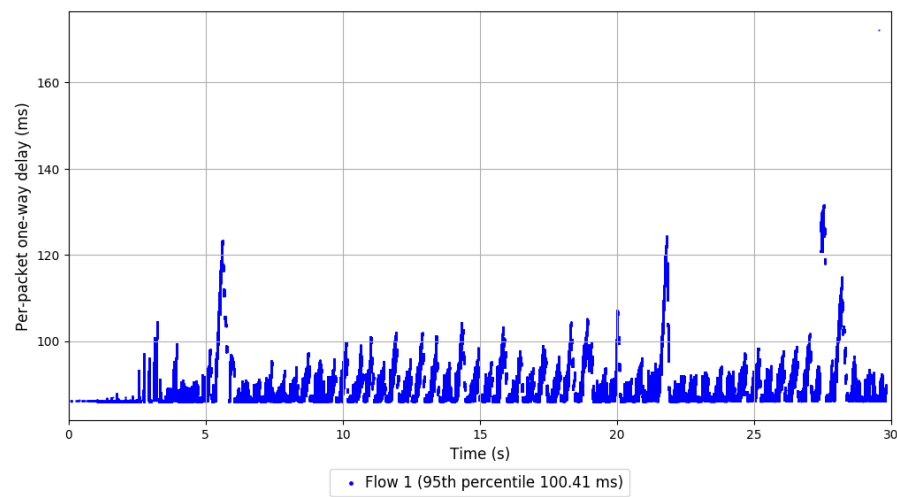
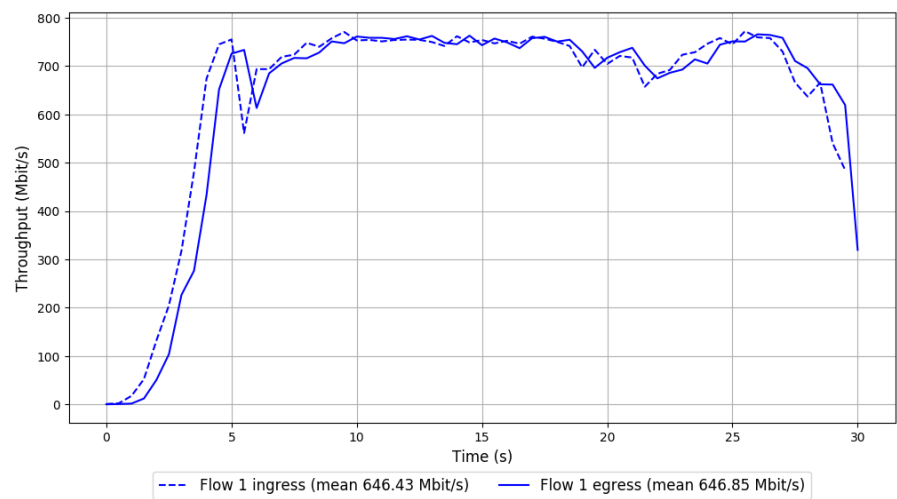


Run 2: Statistics of Indigo-Muses

Start at: 2018-09-07 09:26:56  
End at: 2018-09-07 09:27:26  
Local clock offset: 9.383 ms  
Remote clock offset: 16.437 ms

# Below is generated by plot.py at 2018-09-07 11:59:17  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 646.85 Mbit/s  
95th percentile per-packet one-way delay: 100.410 ms  
Loss rate: 0.51%  
-- Flow 1:  
Average throughput: 646.85 Mbit/s  
95th percentile per-packet one-way delay: 100.410 ms  
Loss rate: 0.51%

Run 2: Report of Indigo-Muses — Data Link



Run 3: Statistics of Indigo-Muses

Start at: 2018-09-07 09:53:30

End at: 2018-09-07 09:54:00

Local clock offset: 3.415 ms

Remote clock offset: 7.174 ms

# Below is generated by plot.py at 2018-09-07 11:59:55

# Datalink statistics

-- Total of 1 flow:

Average throughput: 666.36 Mbit/s

95th percentile per-packet one-way delay: 97.789 ms

Loss rate: 0.65%

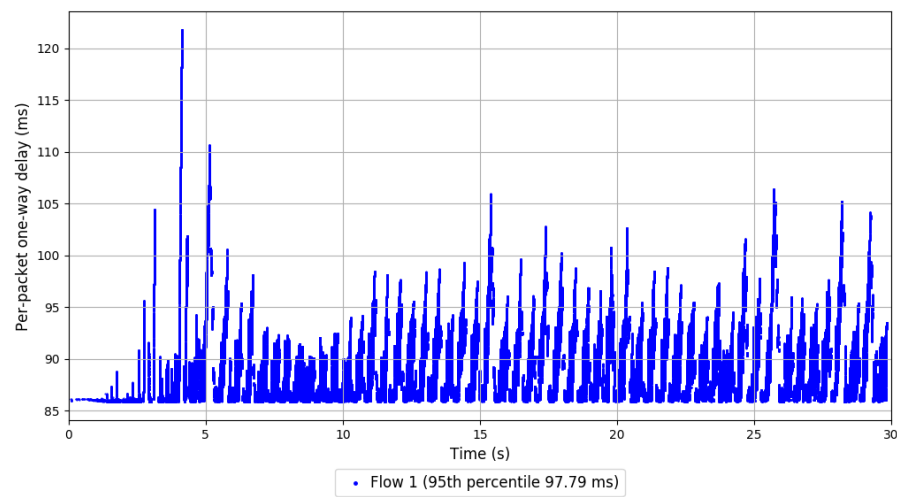
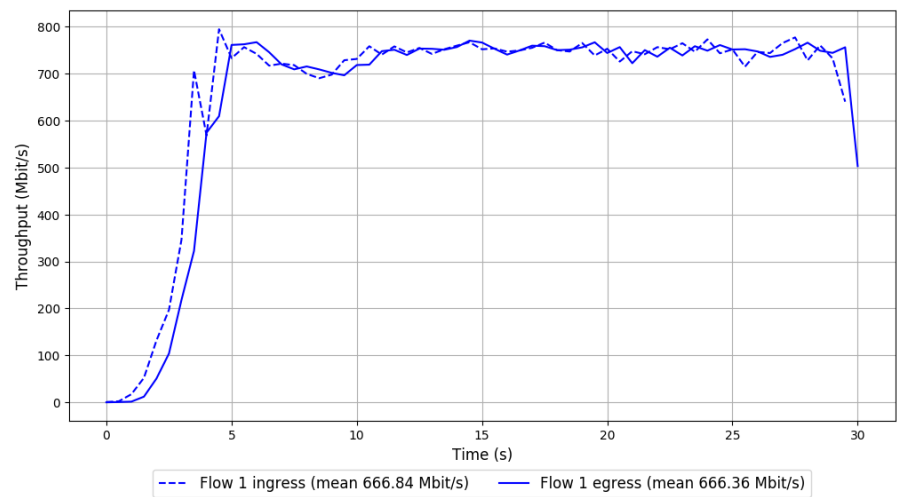
-- Flow 1:

Average throughput: 666.36 Mbit/s

95th percentile per-packet one-way delay: 97.789 ms

Loss rate: 0.65%

Run 3: Report of Indigo-Muses — Data Link





Run 4: Statistics of Indigo-Muses

Start at: 2018-09-07 10:19:58

End at: 2018-09-07 10:20:28

Local clock offset: 1.904 ms

Remote clock offset: 3.909 ms

# Below is generated by plot.py at 2018-09-07 11:59:55

# Datalink statistics

-- Total of 1 flow:

Average throughput: 584.60 Mbit/s

95th percentile per-packet one-way delay: 104.750 ms

Loss rate: 0.72%

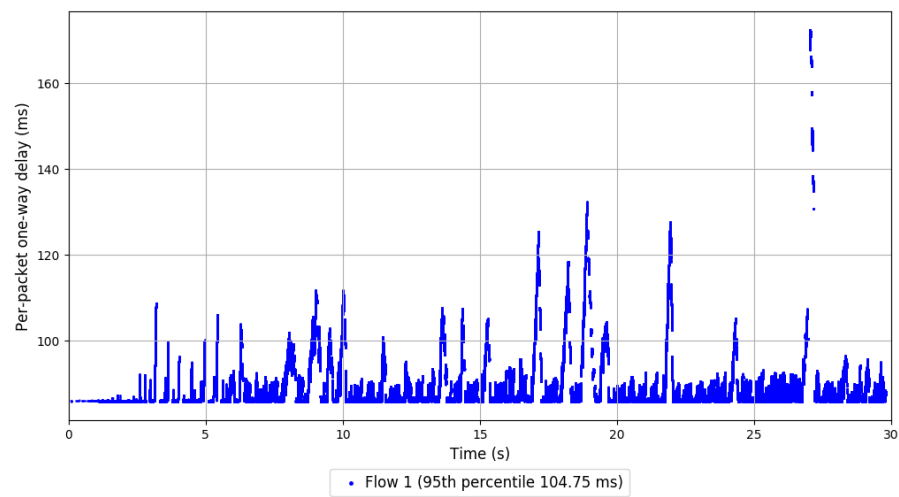
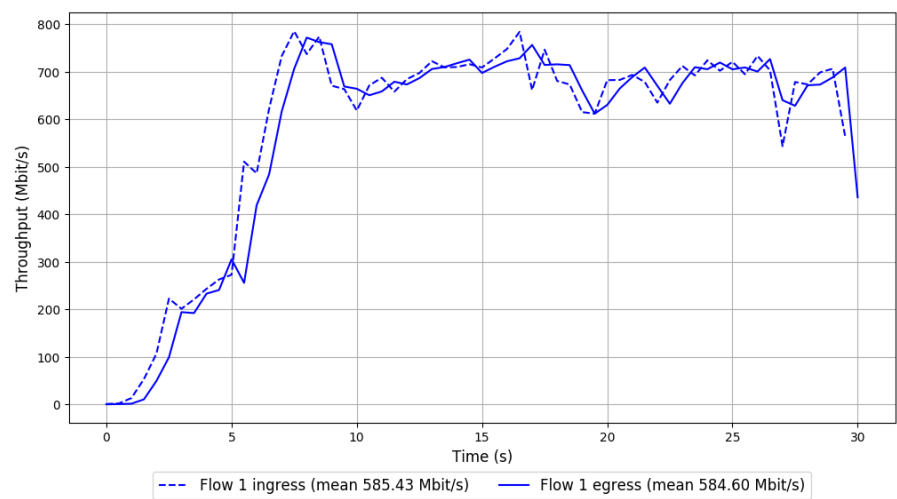
-- Flow 1:

Average throughput: 584.60 Mbit/s

95th percentile per-packet one-way delay: 104.750 ms

Loss rate: 0.72%

Run 4: Report of Indigo-Muses — Data Link



Run 5: Statistics of Indigo-Muses

Start at: 2018-09-07 10:46:31

End at: 2018-09-07 10:47:01

Local clock offset: 1.471 ms

Remote clock offset: 2.998 ms

# Below is generated by plot.py at 2018-09-07 11:59:55

# Datalink statistics

-- Total of 1 flow:

Average throughput: 636.15 Mbit/s

95th percentile per-packet one-way delay: 99.047 ms

Loss rate: 0.69%

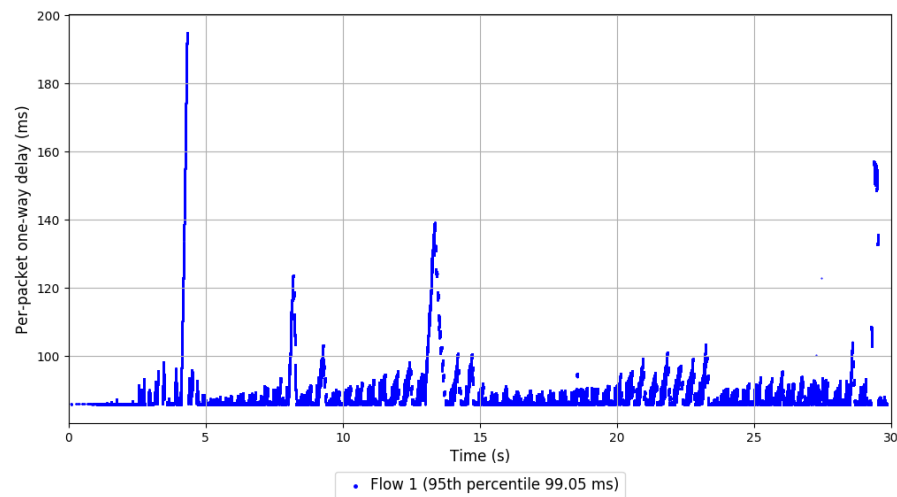
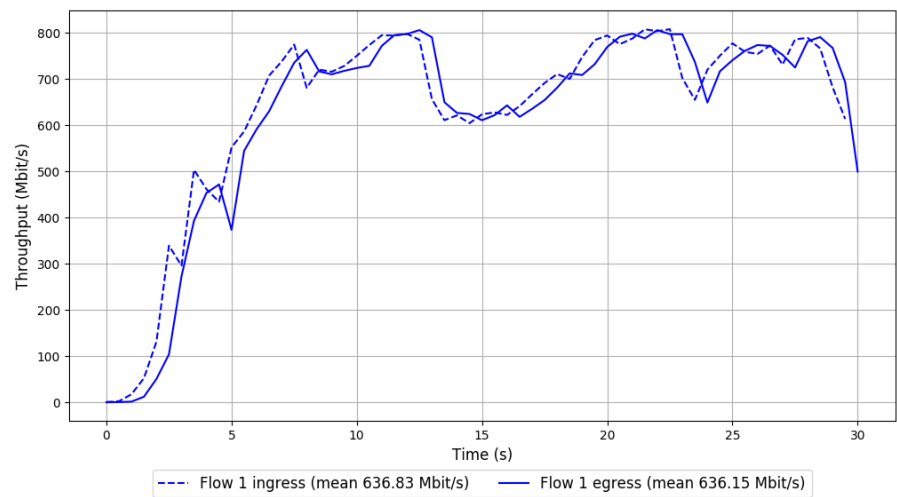
-- Flow 1:

Average throughput: 636.15 Mbit/s

95th percentile per-packet one-way delay: 99.047 ms

Loss rate: 0.69%

Run 5: Report of Indigo-Muses — Data Link

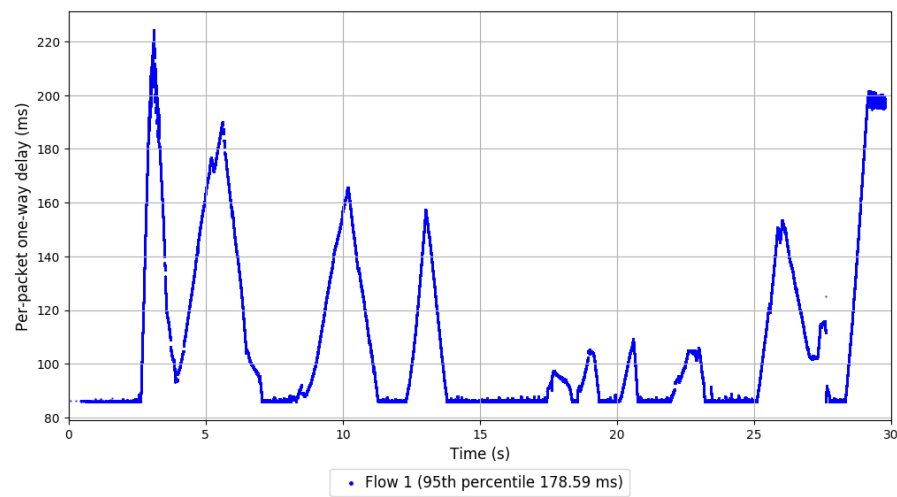
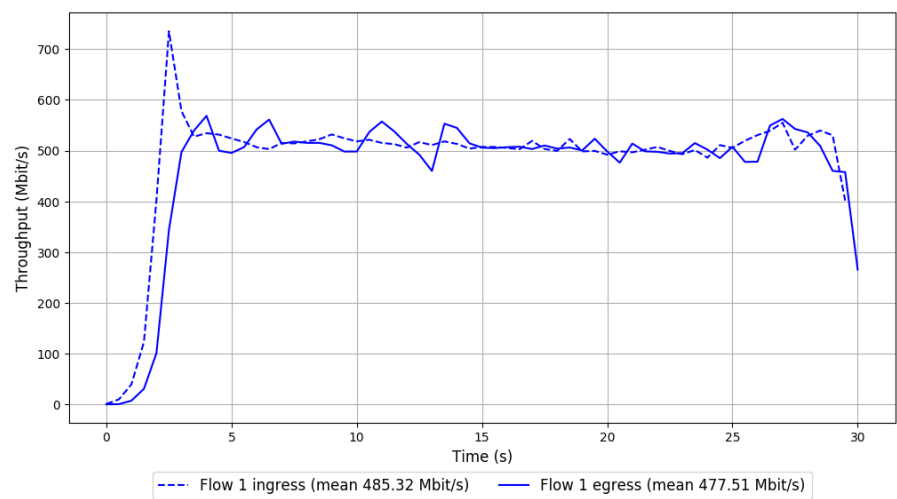


```
Run 1: Statistics of PCC-Allegro

Start at: 2018-09-07 08:46:13
End at: 2018-09-07 08:46:43
Local clock offset: 26.036 ms
Remote clock offset: 25.105 ms

# Below is generated by plot.py at 2018-09-07 12:06:06
# Datalink statistics
-- Total of 1 flow:
Average throughput: 477.51 Mbit/s
95th percentile per-packet one-way delay: 178.595 ms
Loss rate: 2.18%
-- Flow 1:
Average throughput: 477.51 Mbit/s
95th percentile per-packet one-way delay: 178.595 ms
Loss rate: 2.18%
```

Run 1: Report of PCC-Allegro — Data Link



Run 2: Statistics of PCC-Allegro

Start at: 2018-09-07 09:12:33

End at: 2018-09-07 09:13:03

Local clock offset: 12.971 ms

Remote clock offset: 16.047 ms

# Below is generated by plot.py at 2018-09-07 12:07:18

# Datalink statistics

-- Total of 1 flow:

Average throughput: 469.02 Mbit/s

95th percentile per-packet one-way delay: 198.032 ms

Loss rate: 2.55%

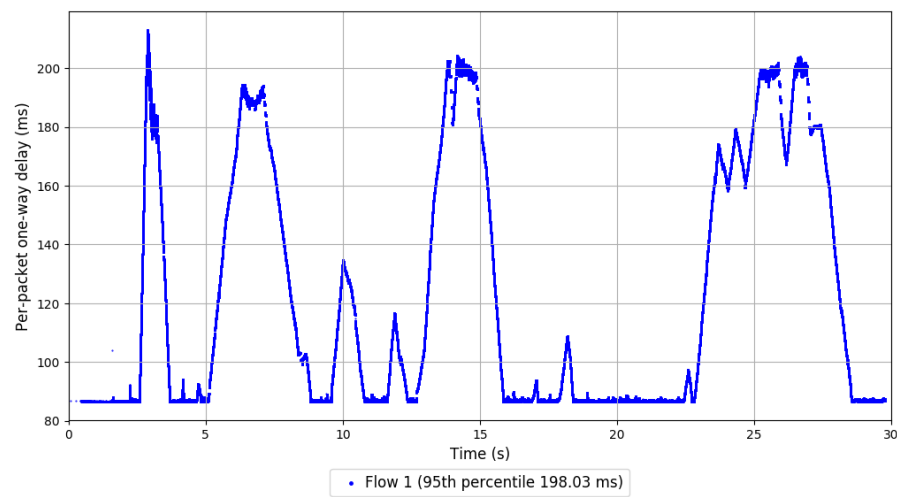
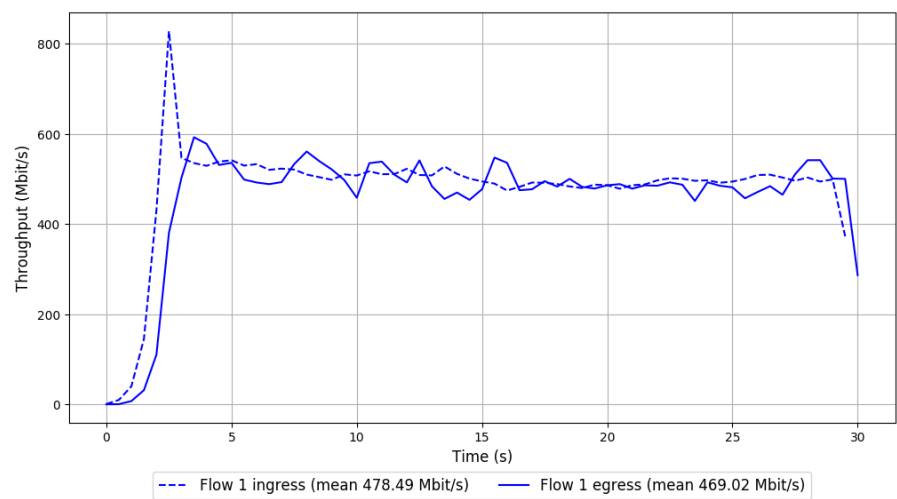
-- Flow 1:

Average throughput: 469.02 Mbit/s

95th percentile per-packet one-way delay: 198.032 ms

Loss rate: 2.55%

Run 2: Report of PCC-Allegro — Data Link





Run 3: Statistics of PCC-Allegro

Start at: 2018-09-07 09:39:08

End at: 2018-09-07 09:39:38

Local clock offset: 6.645 ms

Remote clock offset: 12.556 ms

# Below is generated by plot.py at 2018-09-07 12:10:49

# Datalink statistics

-- Total of 1 flow:

Average throughput: 474.38 Mbit/s

95th percentile per-packet one-way delay: 213.707 ms

Loss rate: 3.86%

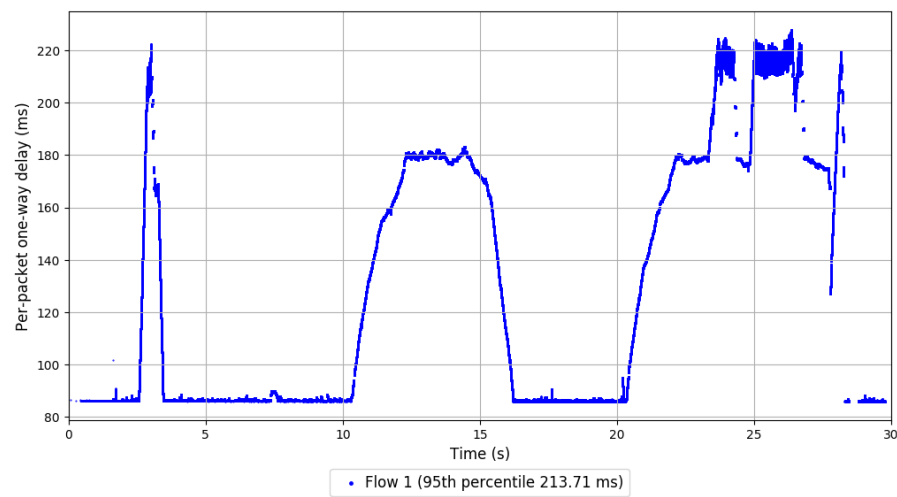
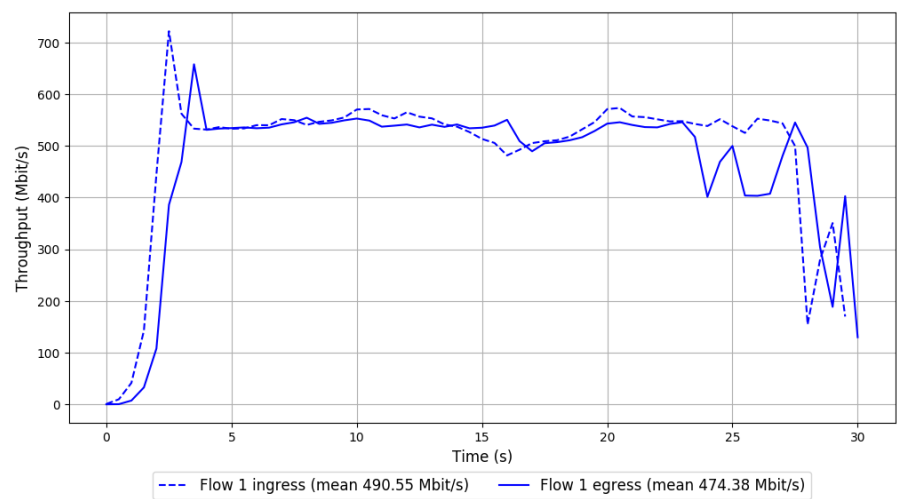
-- Flow 1:

Average throughput: 474.38 Mbit/s

95th percentile per-packet one-way delay: 213.707 ms

Loss rate: 3.86%

Run 3: Report of PCC-Allegro — Data Link



Run 4: Statistics of PCC-Allegro

Start at: 2018-09-07 10:05:41

End at: 2018-09-07 10:06:11

Local clock offset: 3.988 ms

Remote clock offset: 8.823 ms

# Below is generated by plot.py at 2018-09-07 12:13:06

# Datalink statistics

-- Total of 1 flow:

Average throughput: 462.84 Mbit/s

95th percentile per-packet one-way delay: 210.301 ms

Loss rate: 4.03%

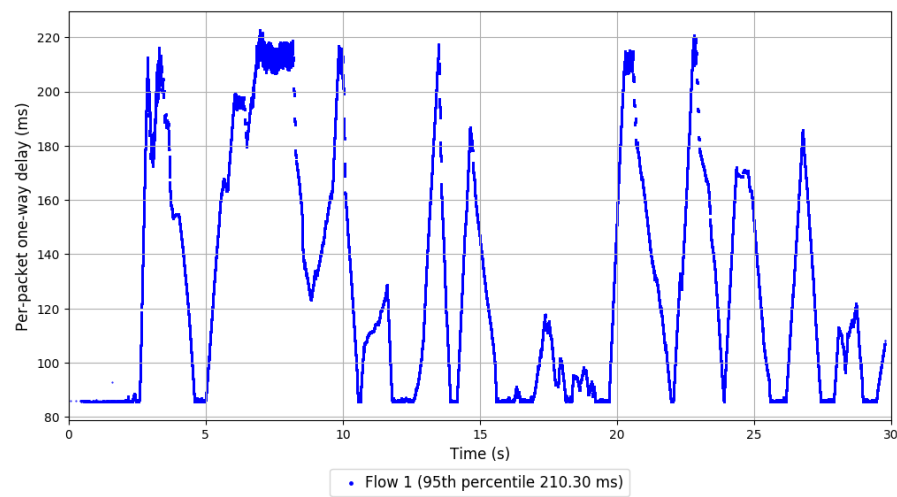
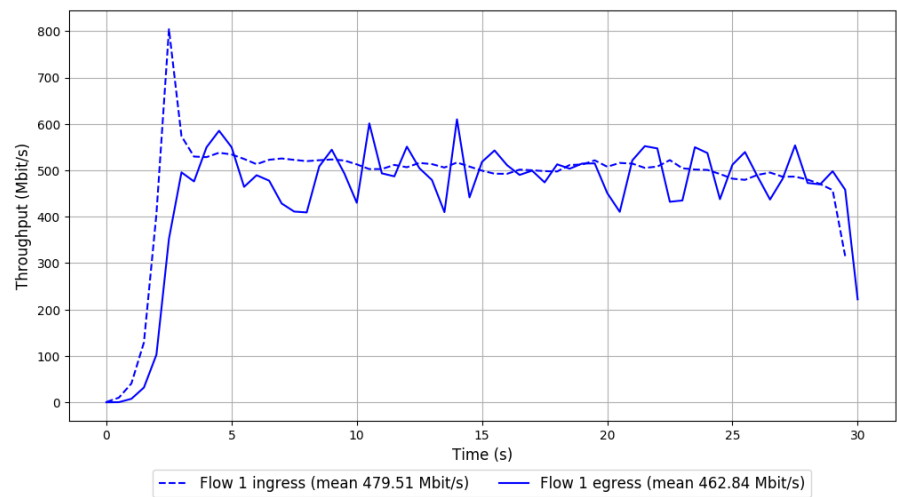
-- Flow 1:

Average throughput: 462.84 Mbit/s

95th percentile per-packet one-way delay: 210.301 ms

Loss rate: 4.03%

Run 4: Report of PCC-Allegro — Data Link



Run 5: Statistics of PCC-Allegro

Start at: 2018-09-07 10:32:10

End at: 2018-09-07 10:32:40

Local clock offset: 1.593 ms

Remote clock offset: 3.568 ms

# Below is generated by plot.py at 2018-09-07 12:14:49

# Datalink statistics

-- Total of 1 flow:

Average throughput: 474.51 Mbit/s

95th percentile per-packet one-way delay: 210.837 ms

Loss rate: 4.68%

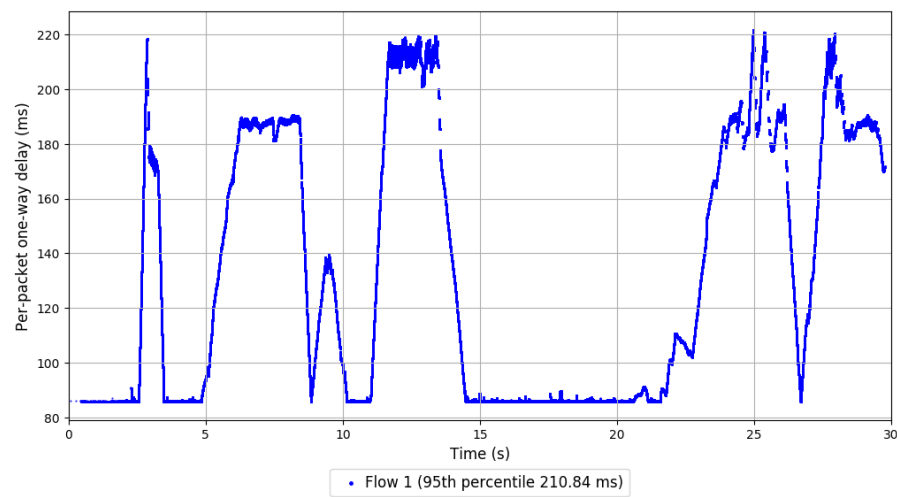
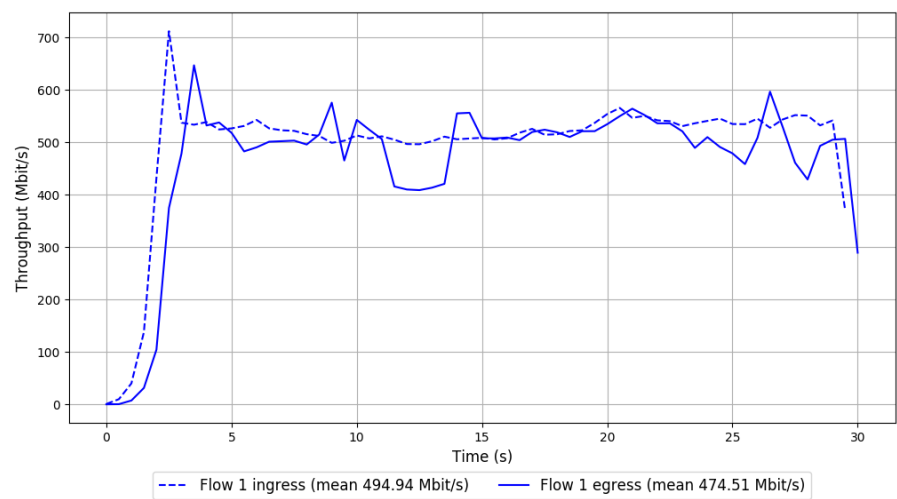
-- Flow 1:

Average throughput: 474.51 Mbit/s

95th percentile per-packet one-way delay: 210.837 ms

Loss rate: 4.68%

Run 5: Report of PCC-Allegro — Data Link

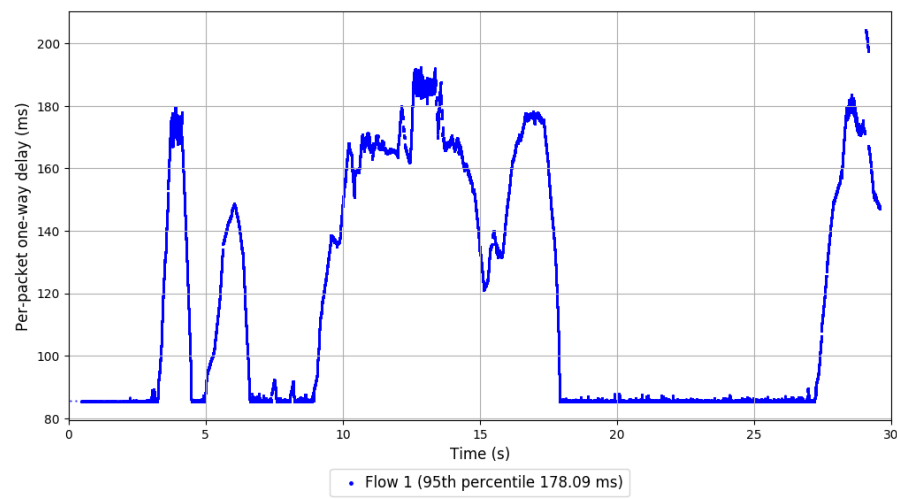
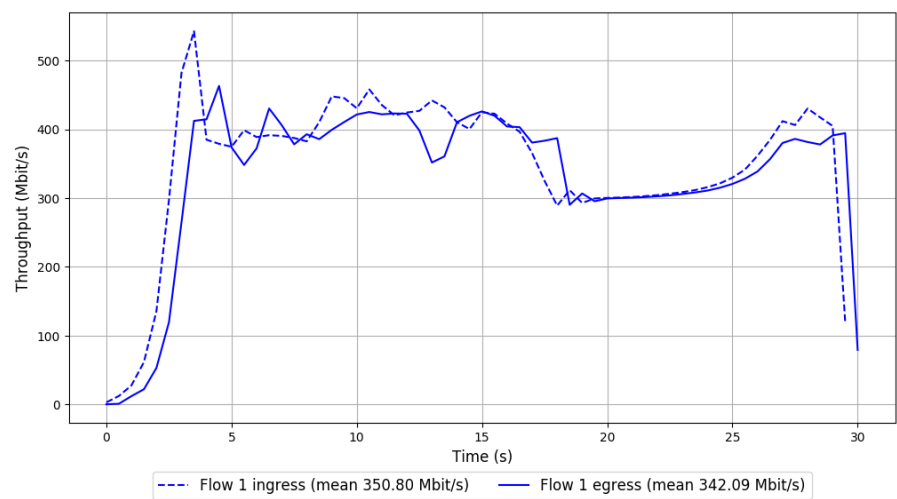


Run 1: Statistics of PCC-Expr

Start at: 2018-09-07 08:53:58  
End at: 2018-09-07 08:54:28  
Local clock offset: 33.356 ms  
Remote clock offset: 32.356 ms

# Below is generated by plot.py at 2018-09-07 12:14:49  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 342.09 Mbit/s  
95th percentile per-packet one-way delay: 178.085 ms  
Loss rate: 3.11%  
-- Flow 1:  
Average throughput: 342.09 Mbit/s  
95th percentile per-packet one-way delay: 178.085 ms  
Loss rate: 3.11%

Run 1: Report of PCC-Expr — Data Link



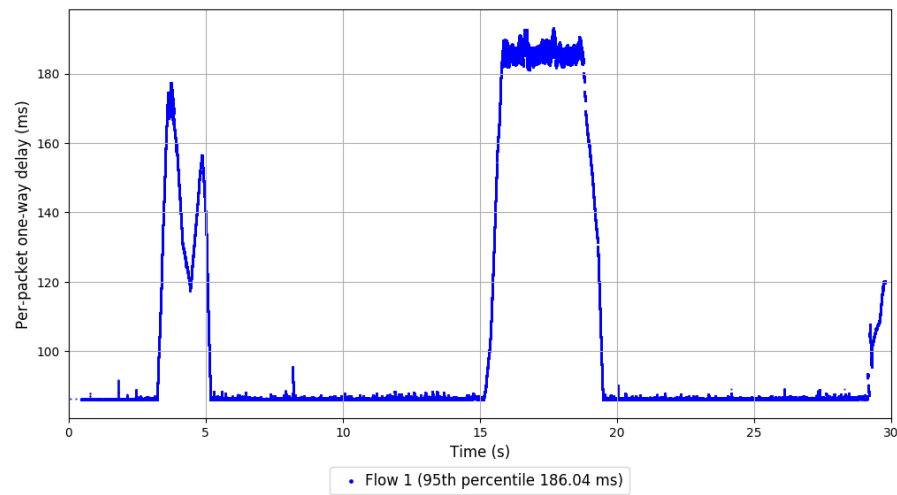
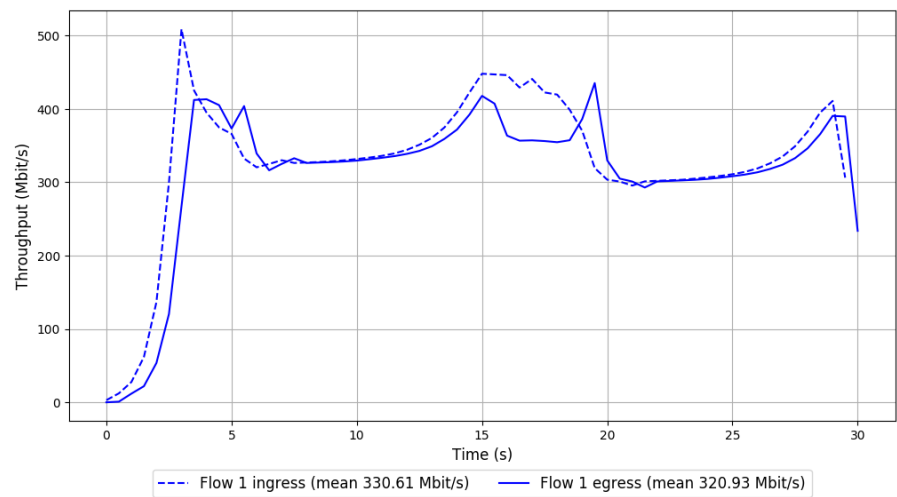


Run 2: Statistics of PCC-Expr

Start at: 2018-09-07 09:20:21  
End at: 2018-09-07 09:20:51  
Local clock offset: 9.463 ms  
Remote clock offset: 14.765 ms

# Below is generated by plot.py at 2018-09-07 12:14:49  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 320.93 Mbit/s  
95th percentile per-packet one-way delay: 186.043 ms  
Loss rate: 3.49%  
-- Flow 1:  
Average throughput: 320.93 Mbit/s  
95th percentile per-packet one-way delay: 186.043 ms  
Loss rate: 3.49%

Run 2: Report of PCC-Expr — Data Link



Run 3: Statistics of PCC-Expr

Start at: 2018-09-07 09:46:57

End at: 2018-09-07 09:47:27

Local clock offset: 3.893 ms

Remote clock offset: 7.865 ms

# Below is generated by plot.py at 2018-09-07 12:14:49

# Datalink statistics

-- Total of 1 flow:

Average throughput: 299.94 Mbit/s

95th percentile per-packet one-way delay: 181.734 ms

Loss rate: 1.48%

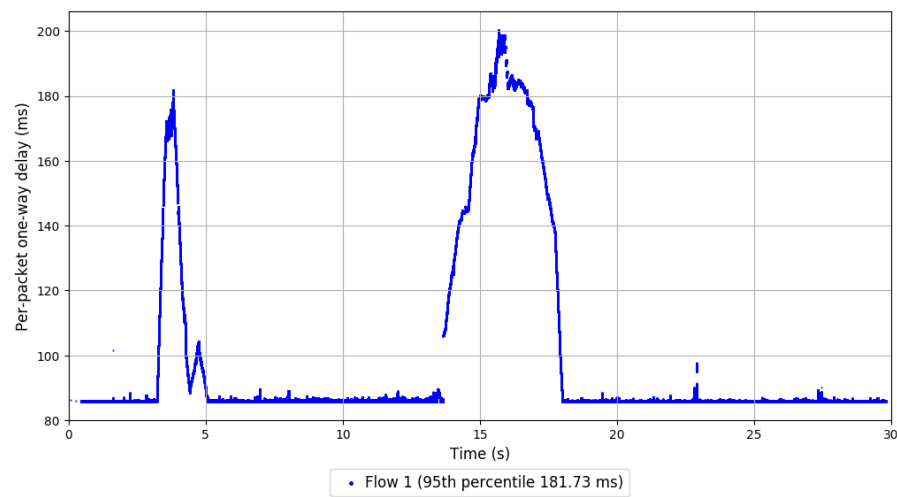
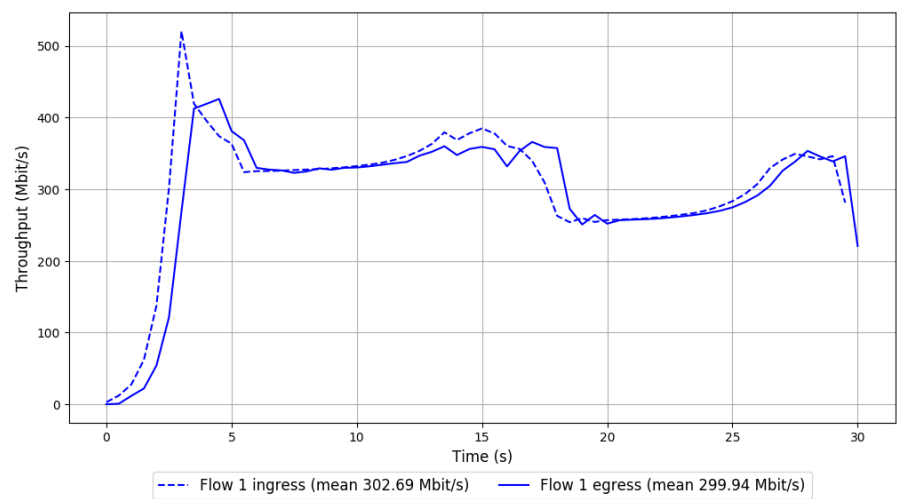
-- Flow 1:

Average throughput: 299.94 Mbit/s

95th percentile per-packet one-way delay: 181.734 ms

Loss rate: 1.48%

Run 3: Report of PCC-Expr — Data Link



Run 4: Statistics of PCC-Expr

Start at: 2018-09-07 10:13:29

End at: 2018-09-07 10:13:59

Local clock offset: 2.816 ms

Remote clock offset: 5.966 ms

# Below is generated by plot.py at 2018-09-07 12:17:08

# Datalink statistics

-- Total of 1 flow:

Average throughput: 303.28 Mbit/s

95th percentile per-packet one-way delay: 180.522 ms

Loss rate: 3.31%

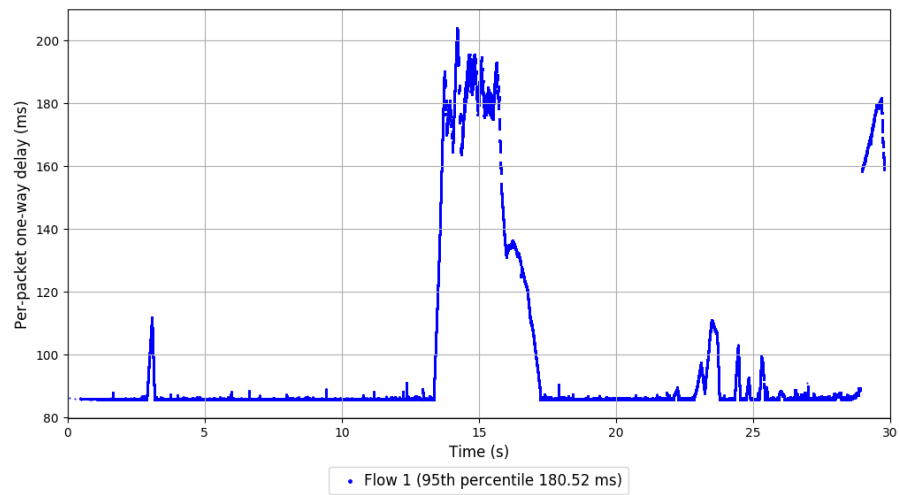
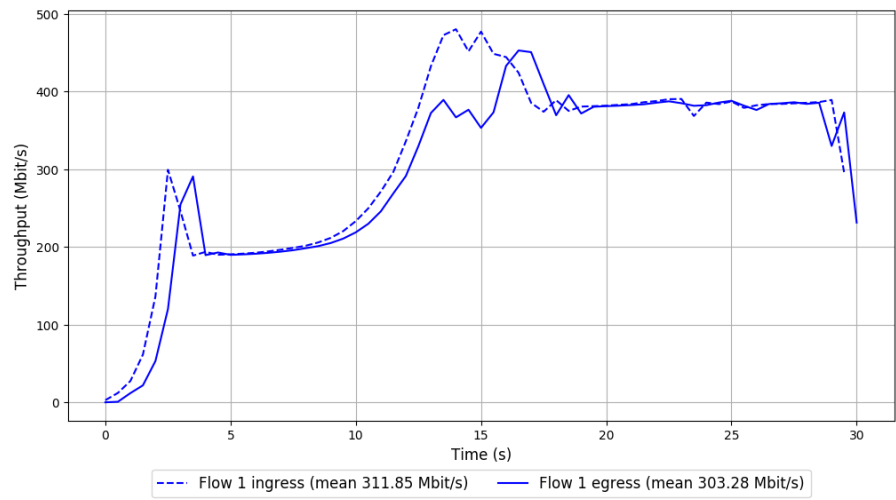
-- Flow 1:

Average throughput: 303.28 Mbit/s

95th percentile per-packet one-way delay: 180.522 ms

Loss rate: 3.31%

#### Run 4: Report of PCC-Expr — Data Link



Run 5: Statistics of PCC-Expr

Start at: 2018-09-07 10:39:55

End at: 2018-09-07 10:40:25

Local clock offset: 2.052 ms

Remote clock offset: 4.22 ms

# Below is generated by plot.py at 2018-09-07 12:18:57

# Datalink statistics

-- Total of 1 flow:

Average throughput: 342.07 Mbit/s

95th percentile per-packet one-way delay: 164.106 ms

Loss rate: 0.95%

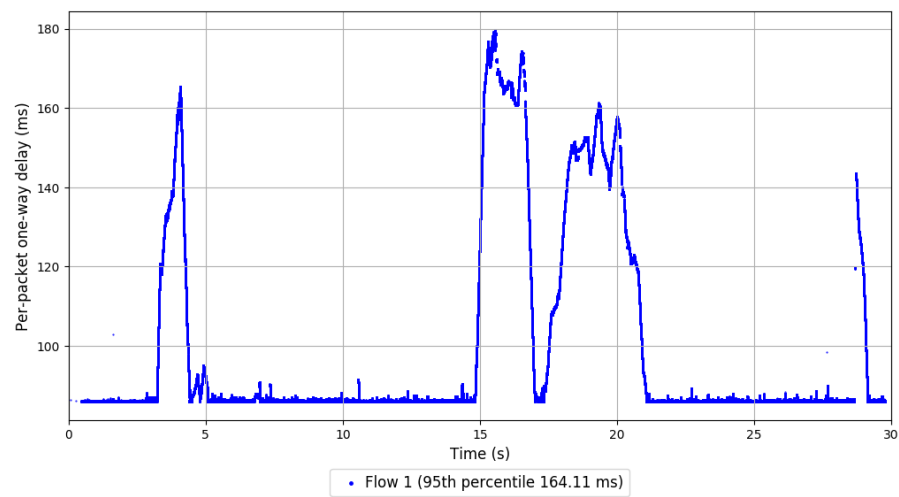
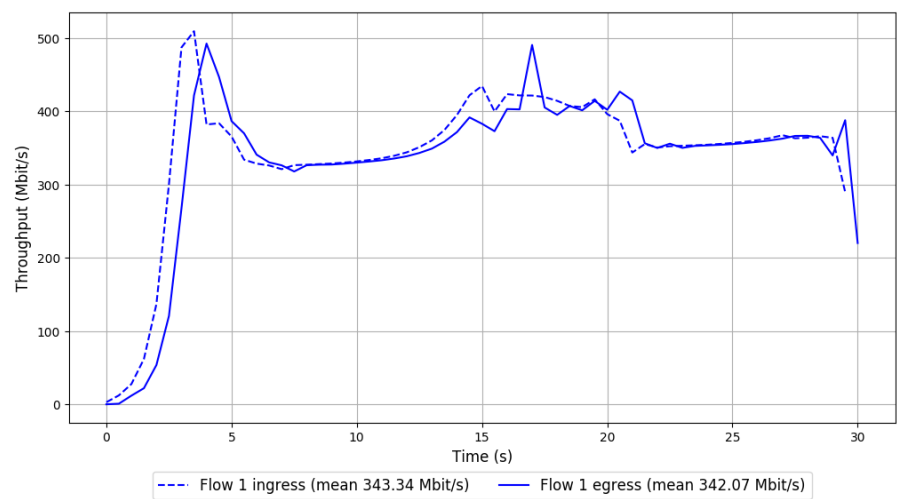
-- Flow 1:

Average throughput: 342.07 Mbit/s

95th percentile per-packet one-way delay: 164.106 ms

Loss rate: 0.95%

Run 5: Report of PCC-Expr — Data Link





Run 1: Statistics of QUIC Cubic

Start at: 2018-09-07 08:59:18

End at: 2018-09-07 08:59:48

Local clock offset: 39.458 ms

Remote clock offset: 37.749 ms

# Below is generated by plot.py at 2018-09-07 12:18:57

# Datalink statistics

-- Total of 1 flow:

Average throughput: 68.43 Mbit/s

95th percentile per-packet one-way delay: 85.747 ms

Loss rate: 0.86%

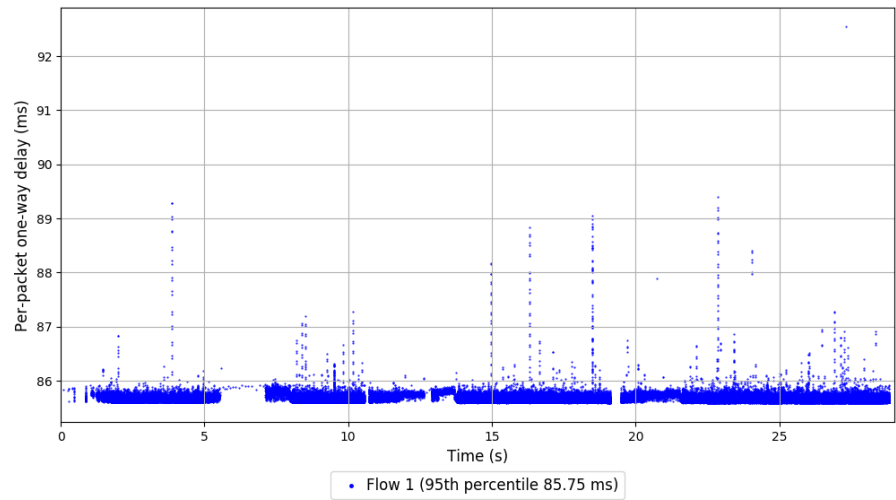
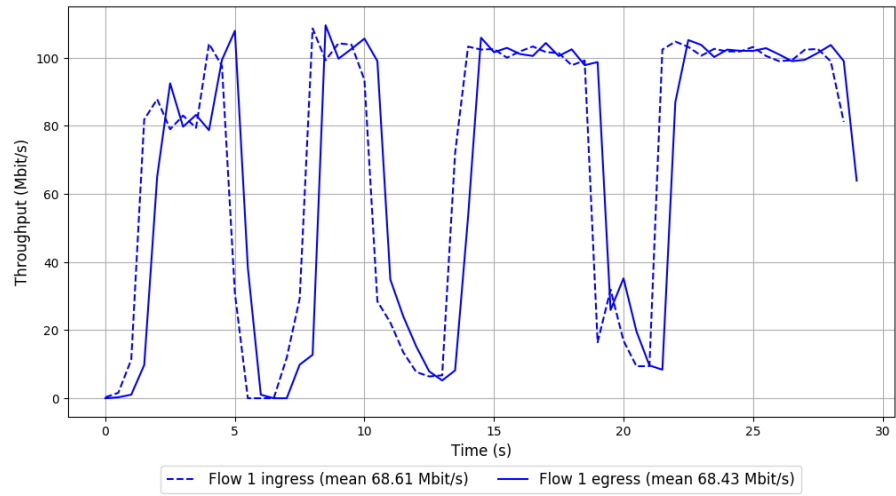
-- Flow 1:

Average throughput: 68.43 Mbit/s

95th percentile per-packet one-way delay: 85.747 ms

Loss rate: 0.86%

# Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2018-09-07 09:25:44

End at: 2018-09-07 09:26:14

Local clock offset: 9.079 ms

Remote clock offset: 16.029 ms

# Below is generated by plot.py at 2018-09-07 12:18:57

# Datalink statistics

-- Total of 1 flow:

Average throughput: 67.47 Mbit/s

95th percentile per-packet one-way delay: 86.048 ms

Loss rate: 0.85%

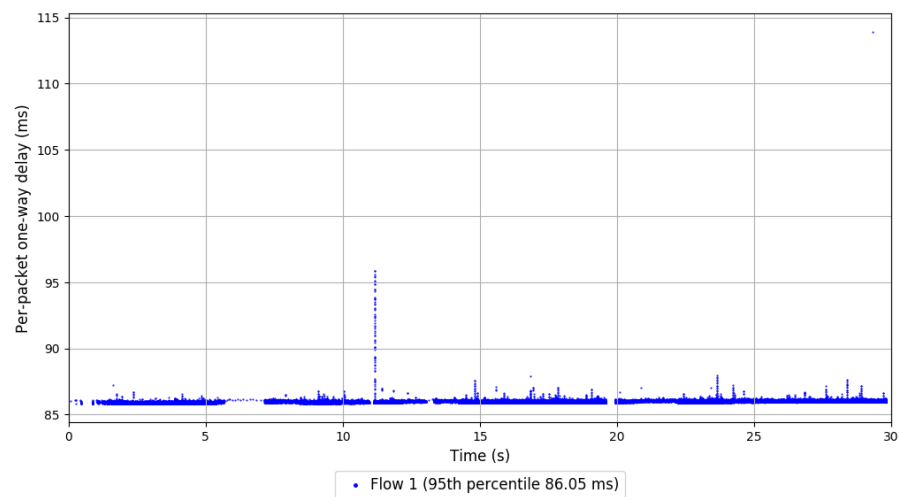
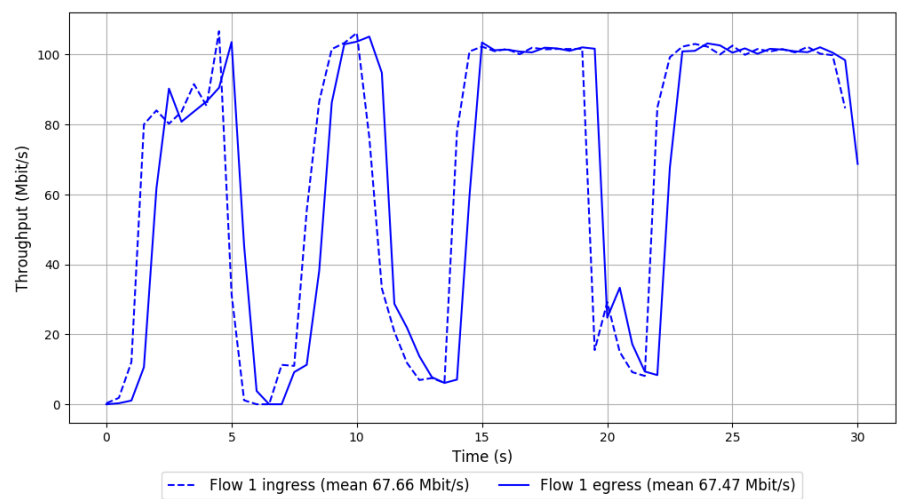
-- Flow 1:

Average throughput: 67.47 Mbit/s

95th percentile per-packet one-way delay: 86.048 ms

Loss rate: 0.85%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2018-09-07 09:52:19

End at: 2018-09-07 09:52:49

Local clock offset: 3.406 ms

Remote clock offset: 7.191 ms

# Below is generated by plot.py at 2018-09-07 12:18:57

# Datalink statistics

-- Total of 1 flow:

Average throughput: 32.69 Mbit/s

95th percentile per-packet one-way delay: 85.950 ms

Loss rate: 0.46%

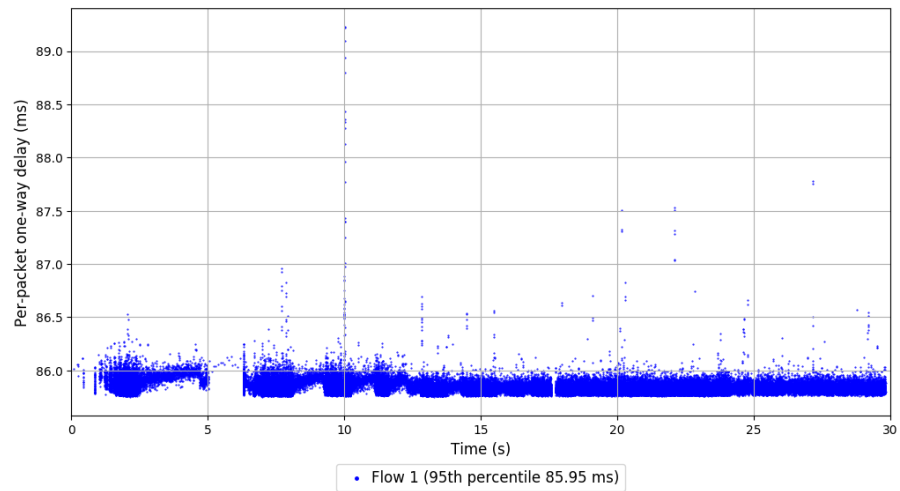
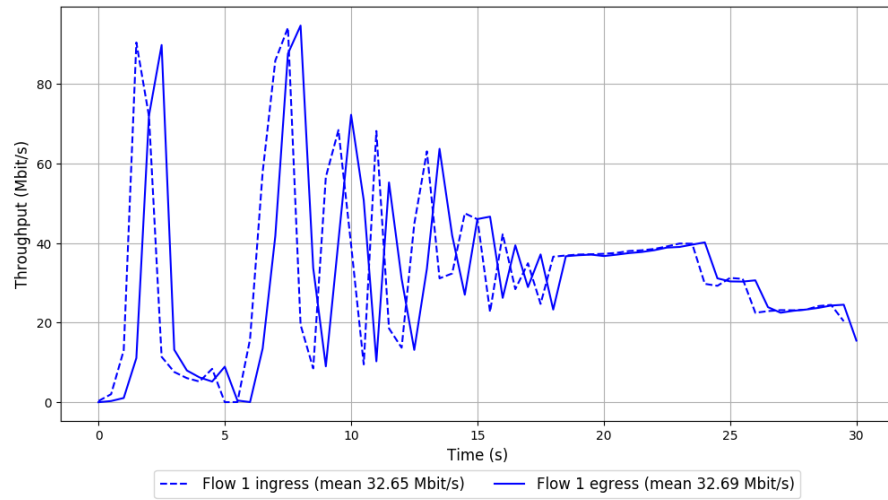
-- Flow 1:

Average throughput: 32.69 Mbit/s

95th percentile per-packet one-way delay: 85.950 ms

Loss rate: 0.46%

### Run 3: Report of QUIC Cubic — Data Link



Run 4: Statistics of QUIC Cubic

Start at: 2018-09-07 10:18:47

End at: 2018-09-07 10:19:17

Local clock offset: 1.851 ms

Remote clock offset: 4.18 ms

# Below is generated by plot.py at 2018-09-07 12:18:57

# Datalink statistics

-- Total of 1 flow:

Average throughput: 64.88 Mbit/s

95th percentile per-packet one-way delay: 85.807 ms

Loss rate: 0.92%

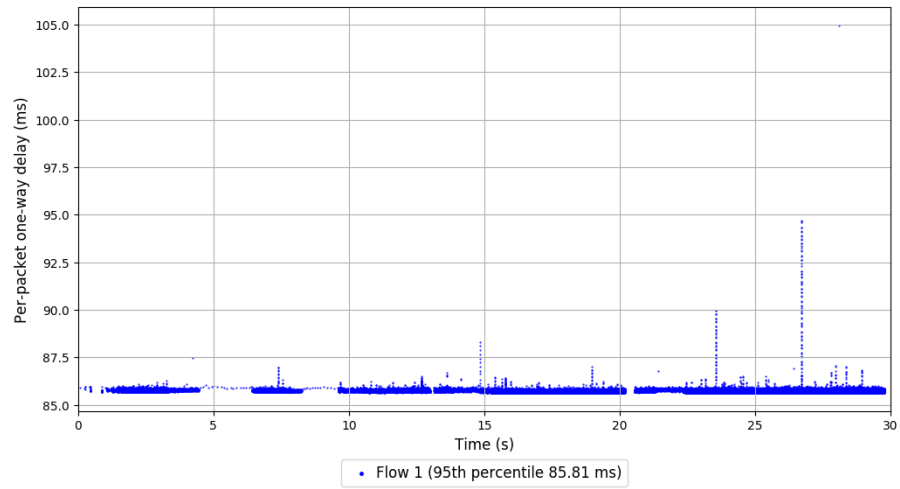
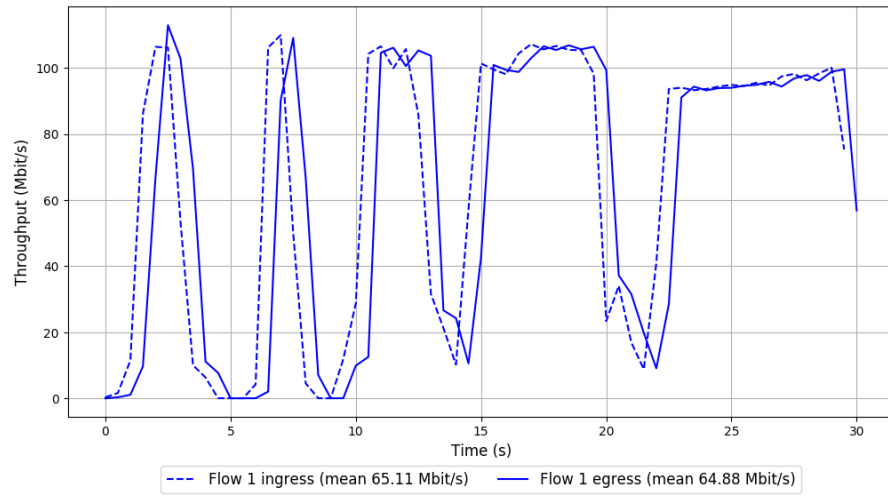
-- Flow 1:

Average throughput: 64.88 Mbit/s

95th percentile per-packet one-way delay: 85.807 ms

Loss rate: 0.92%

#### Run 4: Report of QUIC Cubic — Data Link





Run 5: Statistics of QUIC Cubic

Start at: 2018-09-07 10:45:19

End at: 2018-09-07 10:45:49

Local clock offset: 1.598 ms

Remote clock offset: 3.452 ms

# Below is generated by plot.py at 2018-09-07 12:18:57

# Datalink statistics

-- Total of 1 flow:

Average throughput: 67.59 Mbit/s

95th percentile per-packet one-way delay: 86.131 ms

Loss rate: 0.93%

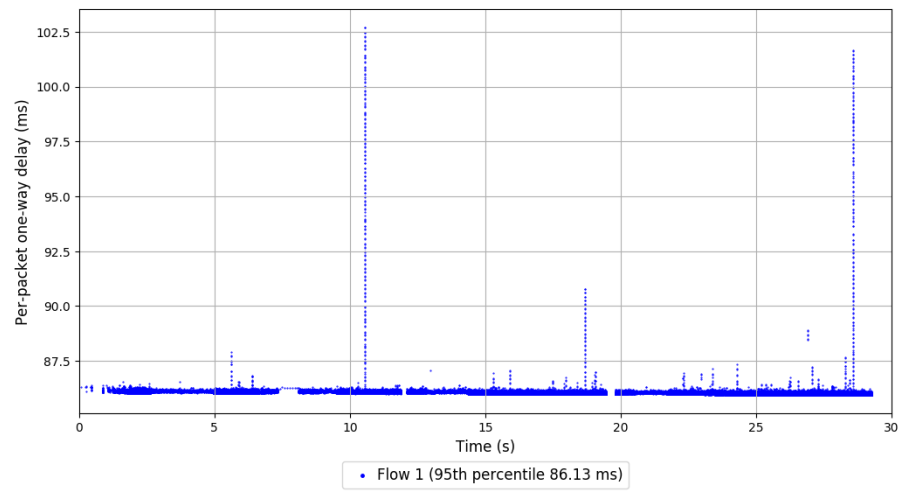
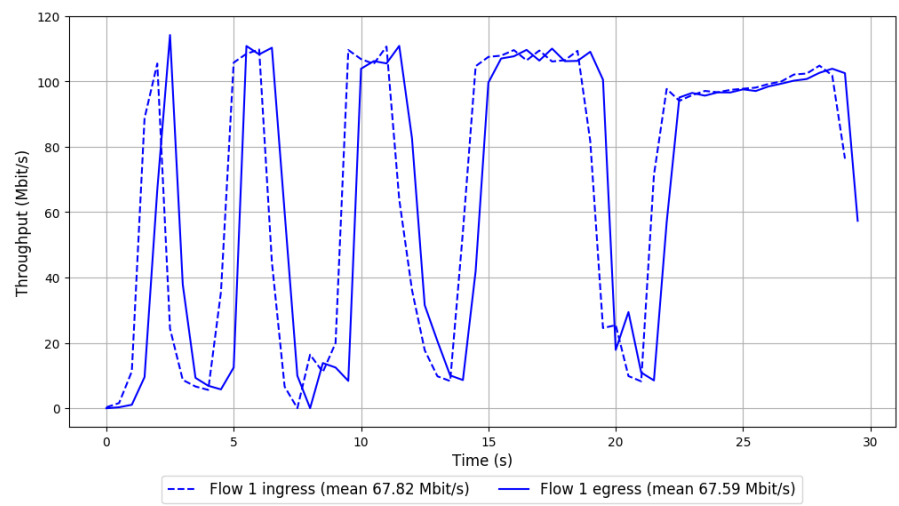
-- Flow 1:

Average throughput: 67.59 Mbit/s

95th percentile per-packet one-way delay: 86.131 ms

Loss rate: 0.93%

Run 5: Report of QUIC Cubic — Data Link

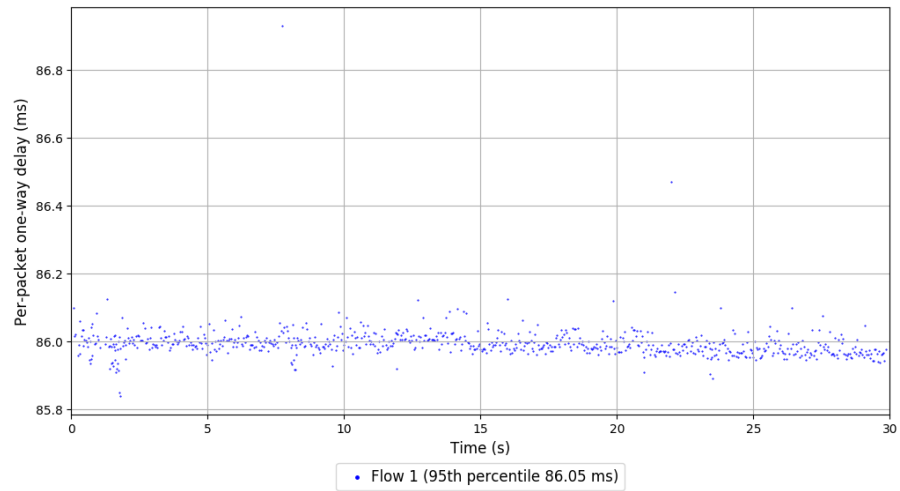
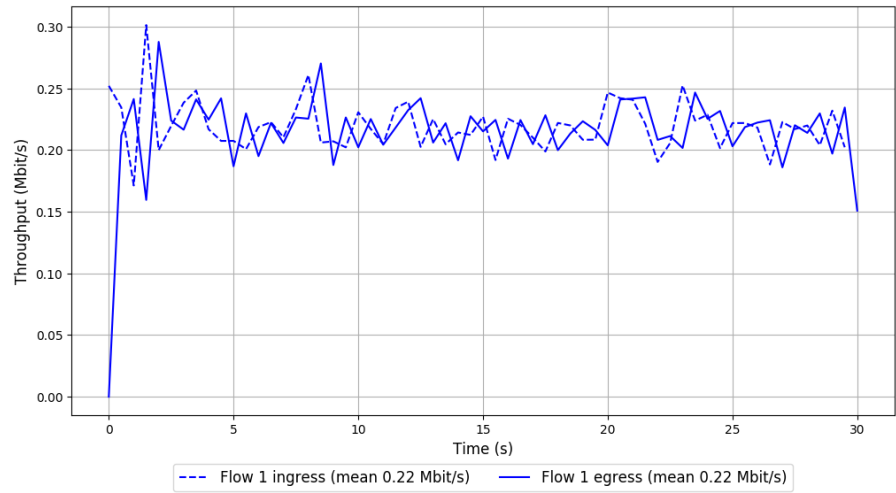


```
Run 1: Statistics of SCReAM

Start at: 2018-09-07 08:57:01
End at: 2018-09-07 08:57:31
Local clock offset: 37.007 ms
Remote clock offset: 35.506 ms

# Below is generated by plot.py at 2018-09-07 12:18:57
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.046 ms
Loss rate: 0.64%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 86.046 ms
Loss rate: 0.64%
```

## Run 1: Report of SReAM — Data Link



Run 2: Statistics of SCReAM

Start at: 2018-09-07 09:23:27

End at: 2018-09-07 09:23:57

Local clock offset: 8.886 ms

Remote clock offset: 15.38 ms

# Below is generated by plot.py at 2018-09-07 12:18:57

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 86.097 ms

Loss rate: 0.64%

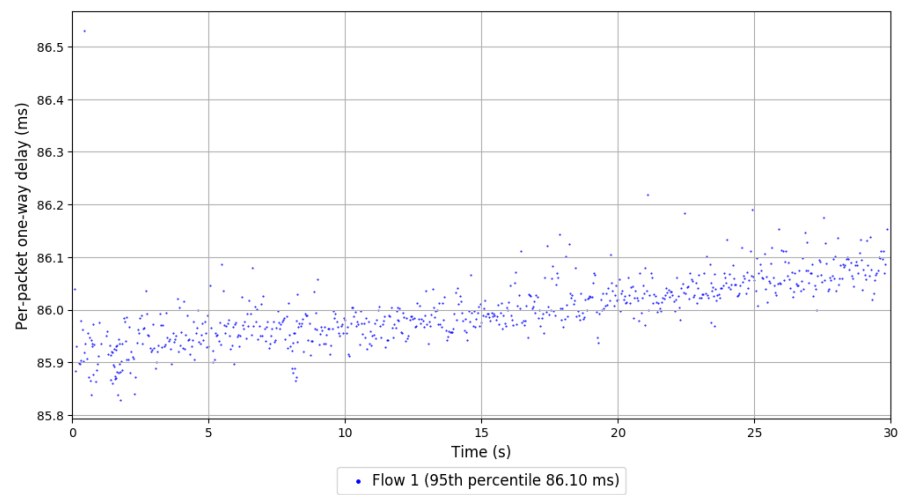
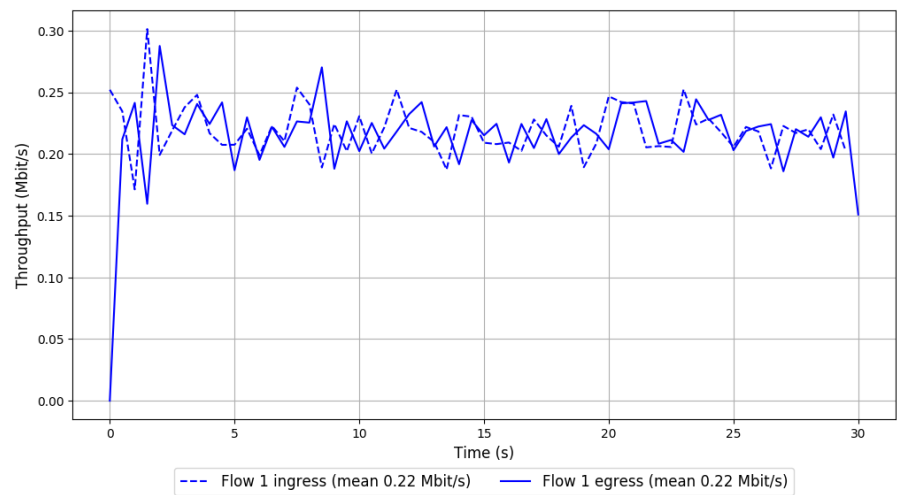
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 86.097 ms

Loss rate: 0.64%

Run 2: Report of SReAM — Data Link



Run 3: Statistics of SCReAM

Start at: 2018-09-07 09:50:02

End at: 2018-09-07 09:50:32

Local clock offset: 3.488 ms

Remote clock offset: 7.324 ms

# Below is generated by plot.py at 2018-09-07 12:18:57

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 86.021 ms

Loss rate: 0.64%

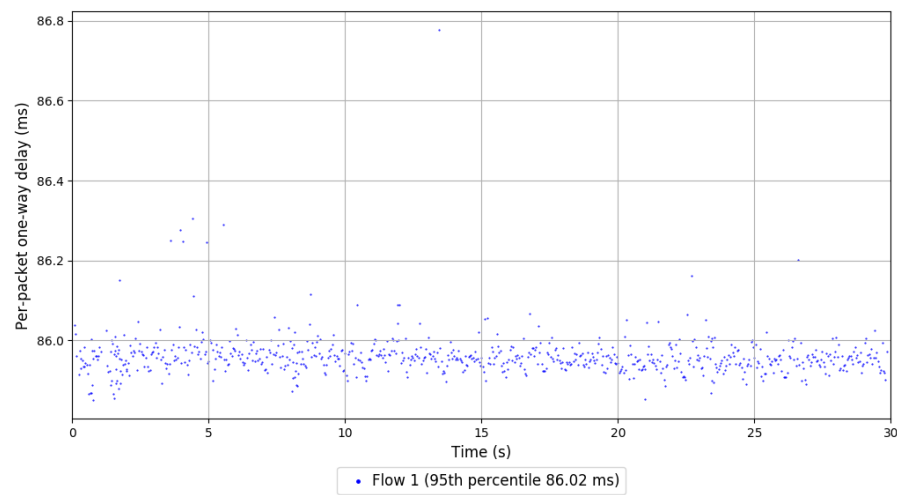
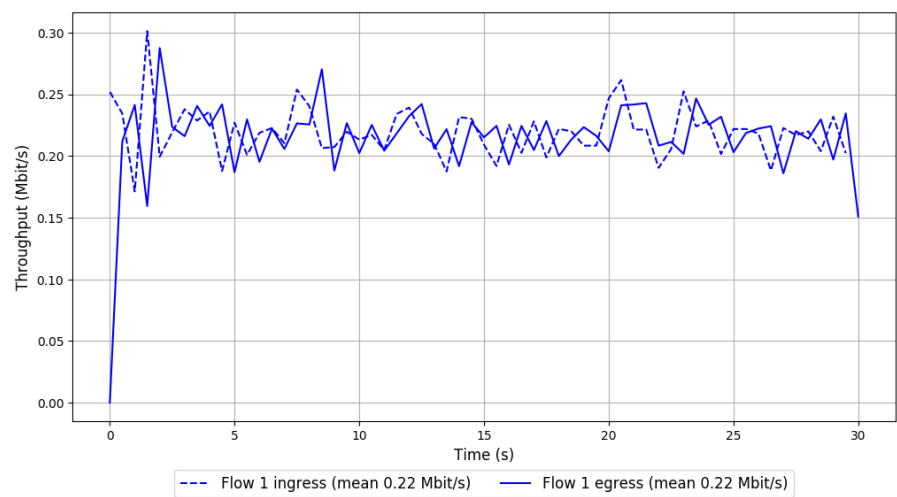
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 86.021 ms

Loss rate: 0.64%

Run 3: Report of SReAM — Data Link





Run 4: Statistics of SCReAM

Start at: 2018-09-07 10:16:29

End at: 2018-09-07 10:16:59

Local clock offset: 2.262 ms

Remote clock offset: 4.738 ms

# Below is generated by plot.py at 2018-09-07 12:18:57

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 86.133 ms

Loss rate: 0.51%

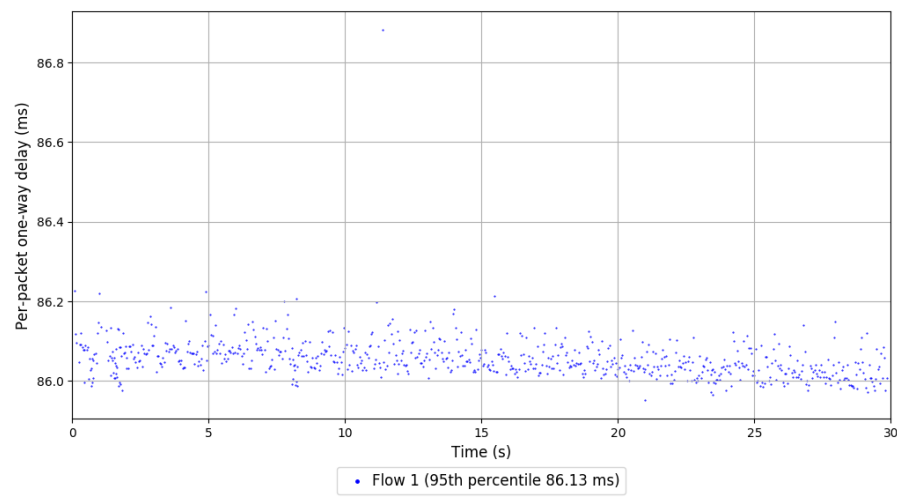
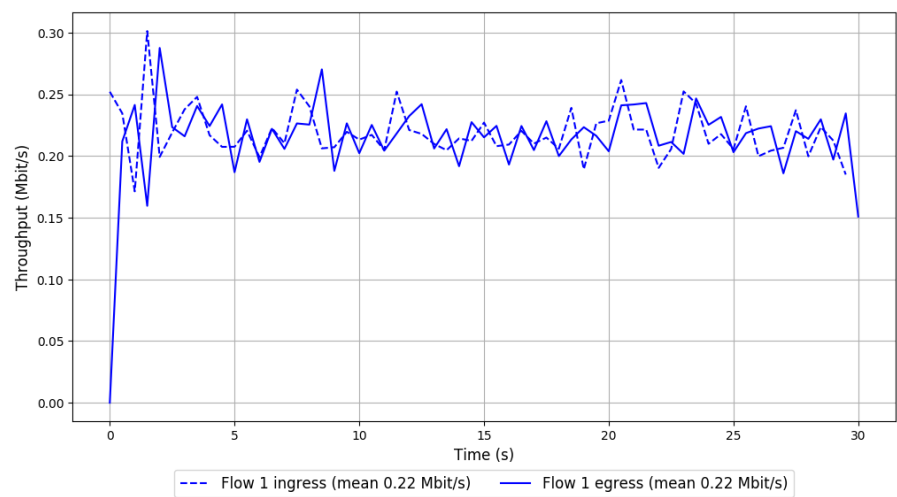
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 86.133 ms

Loss rate: 0.51%

Run 4: Report of SReAM — Data Link



Run 5: Statistics of SCReAM

Start at: 2018-09-07 10:43:02

End at: 2018-09-07 10:43:32

Local clock offset: 2.105 ms

Remote clock offset: 4.342 ms

# Below is generated by plot.py at 2018-09-07 12:18:57

# Datalink statistics

-- Total of 1 flow:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 86.157 ms

Loss rate: 0.64%

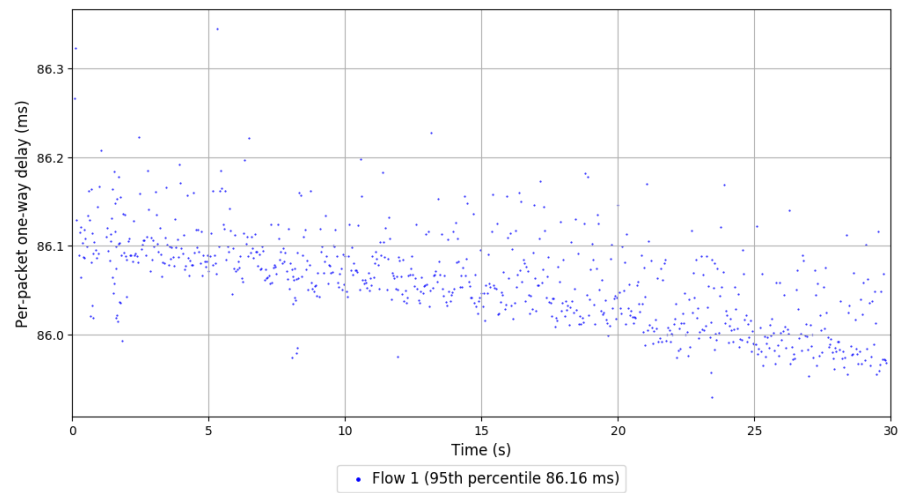
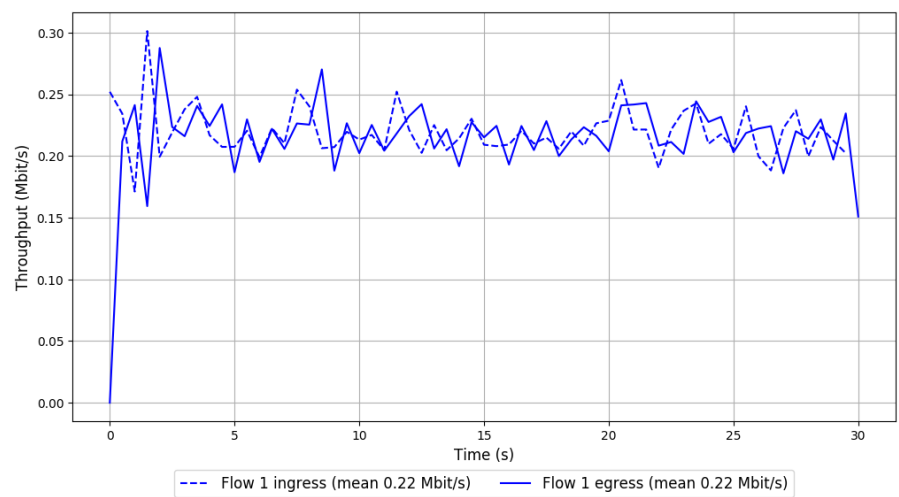
-- Flow 1:

Average throughput: 0.22 Mbit/s

95th percentile per-packet one-way delay: 86.157 ms

Loss rate: 0.64%

Run 5: Report of SReAM — Data Link



Run 1: Statistics of Sprout

Start at: 2018-09-07 09:08:18

End at: 2018-09-07 09:08:48

Local clock offset: 17.952 ms

Remote clock offset: 19.68 ms

# Below is generated by plot.py at 2018-09-07 12:18:57

# Datalink statistics

-- Total of 1 flow:

Average throughput: 4.50 Mbit/s

95th percentile per-packet one-way delay: 87.231 ms

Loss rate: 0.72%

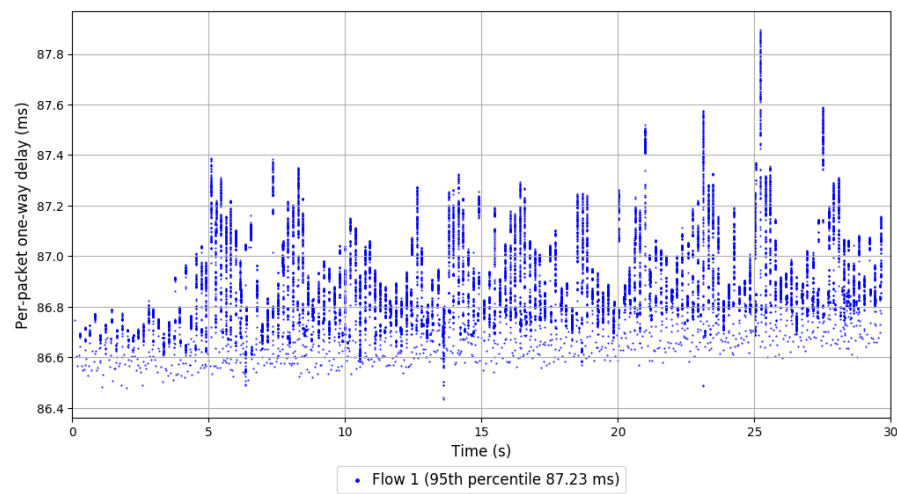
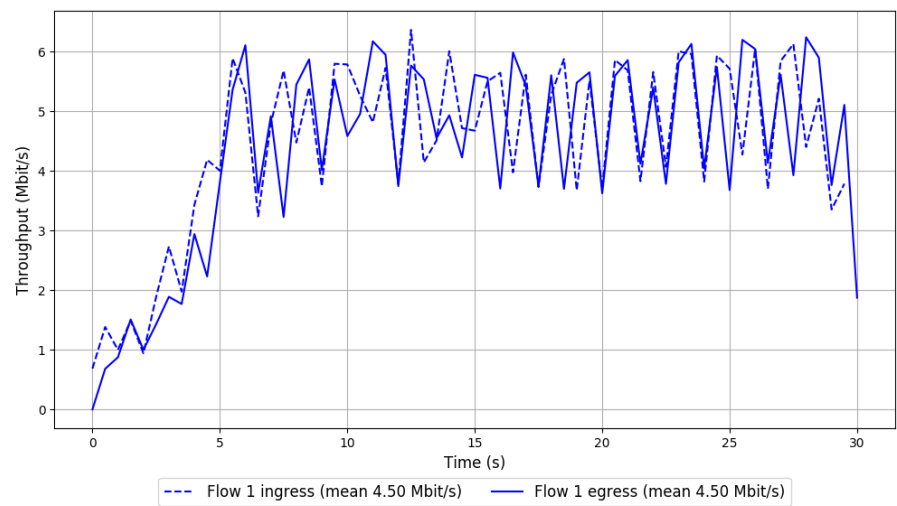
-- Flow 1:

Average throughput: 4.50 Mbit/s

95th percentile per-packet one-way delay: 87.231 ms

Loss rate: 0.72%

Run 1: Report of Sprout — Data Link

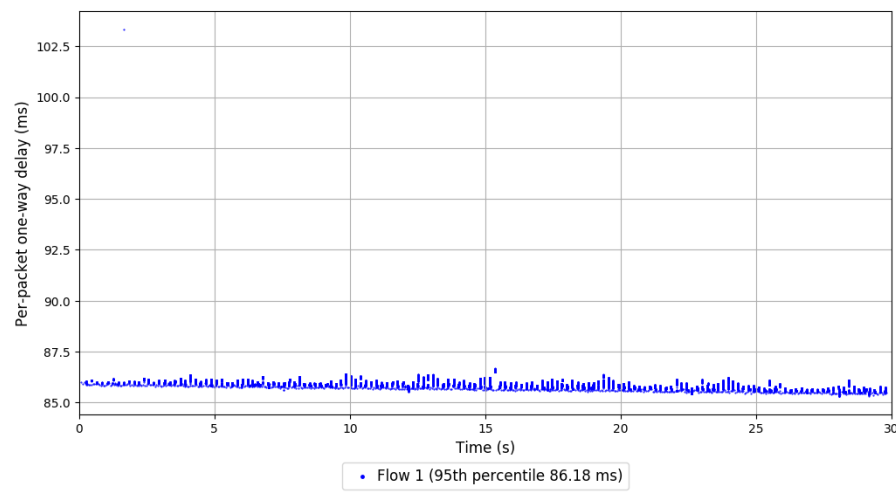
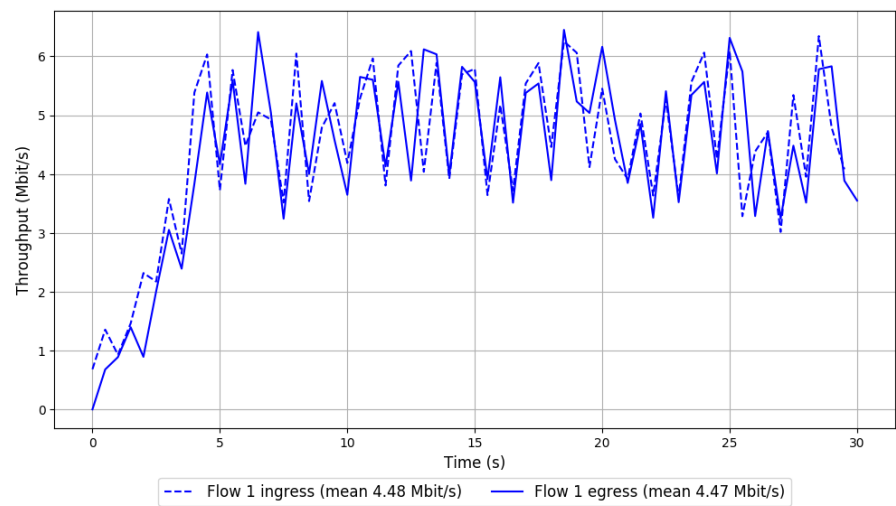


Run 2: Statistics of Sprout

Start at: 2018-09-07 09:34:55  
End at: 2018-09-07 09:35:25  
Local clock offset: 9.348 ms  
Remote clock offset: 18.706 ms

# Below is generated by plot.py at 2018-09-07 12:18:57  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 4.47 Mbit/s  
95th percentile per-packet one-way delay: 86.183 ms  
Loss rate: 0.73%  
-- Flow 1:  
Average throughput: 4.47 Mbit/s  
95th percentile per-packet one-way delay: 86.183 ms  
Loss rate: 0.73%

Run 2: Report of Sprout — Data Link





Run 3: Statistics of Sprout

Start at: 2018-09-07 10:01:24

End at: 2018-09-07 10:01:54

Local clock offset: 3.726 ms

Remote clock offset: 7.987 ms

# Below is generated by plot.py at 2018-09-07 12:18:57

# Datalink statistics

-- Total of 1 flow:

Average throughput: 4.61 Mbit/s

95th percentile per-packet one-way delay: 86.558 ms

Loss rate: 0.64%

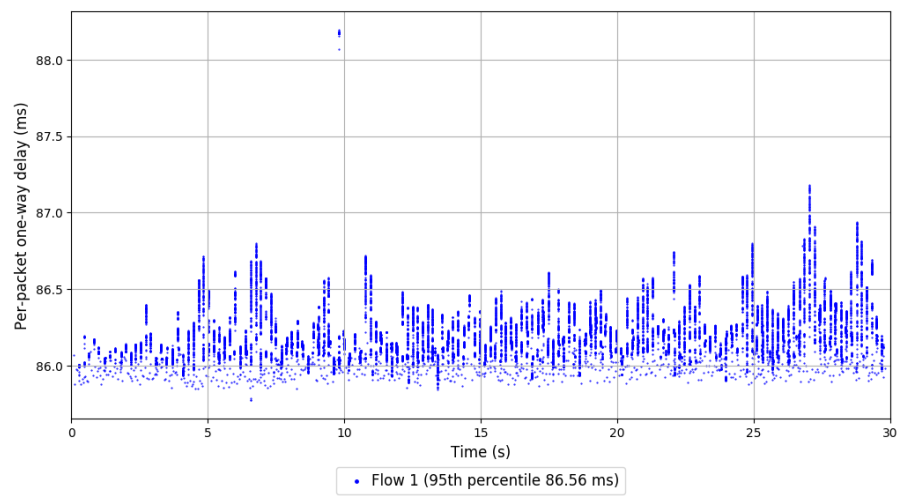
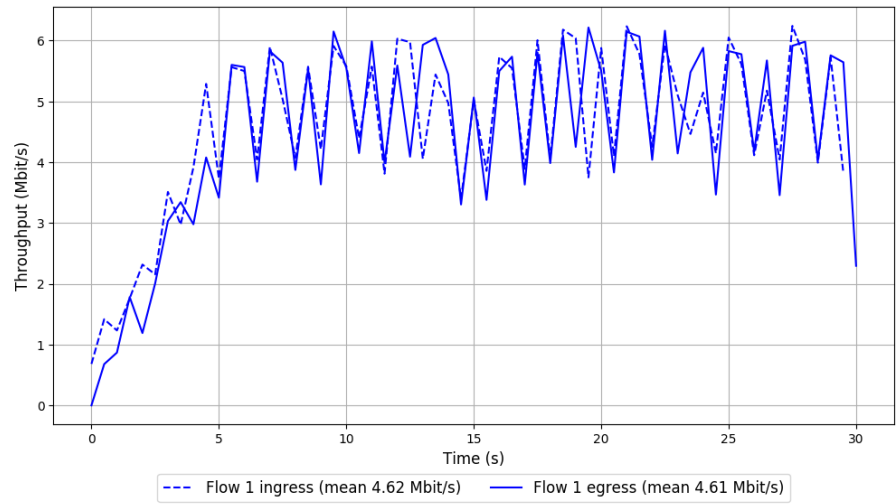
-- Flow 1:

Average throughput: 4.61 Mbit/s

95th percentile per-packet one-way delay: 86.558 ms

Loss rate: 0.64%

### Run 3: Report of Sprout — Data Link



Run 4: Statistics of Sprout

Start at: 2018-09-07 10:27:52

End at: 2018-09-07 10:28:22

Local clock offset: 1.747 ms

Remote clock offset: 3.451 ms

# Below is generated by plot.py at 2018-09-07 12:18:57

# Datalink statistics

-- Total of 1 flow:

Average throughput: 4.46 Mbit/s

95th percentile per-packet one-way delay: 86.681 ms

Loss rate: 0.67%

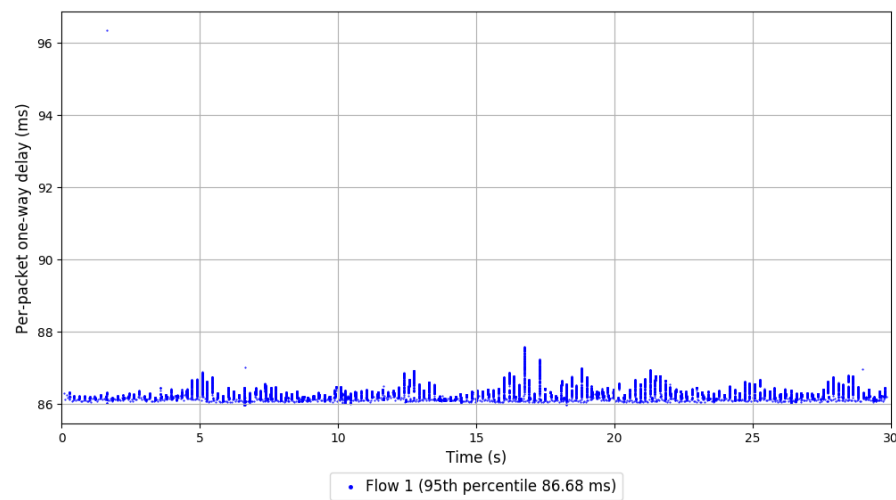
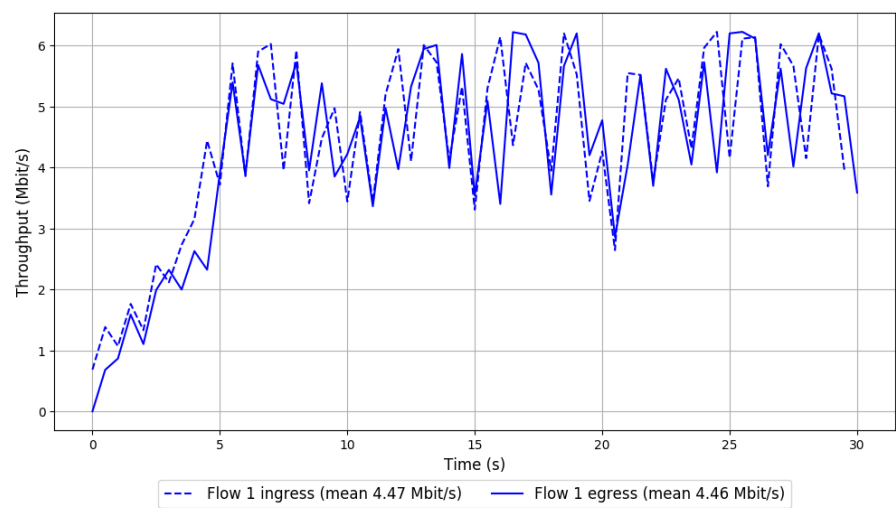
-- Flow 1:

Average throughput: 4.46 Mbit/s

95th percentile per-packet one-way delay: 86.681 ms

Loss rate: 0.67%

Run 4: Report of Sprout — Data Link



Run 5: Statistics of Sprout

Start at: 2018-09-07 10:54:27

End at: 2018-09-07 10:54:57

Local clock offset: 0.917 ms

Remote clock offset: 1.506 ms

# Below is generated by plot.py at 2018-09-07 12:18:57

# Datalink statistics

-- Total of 1 flow:

Average throughput: 4.51 Mbit/s

95th percentile per-packet one-way delay: 86.620 ms

Loss rate: 0.06%

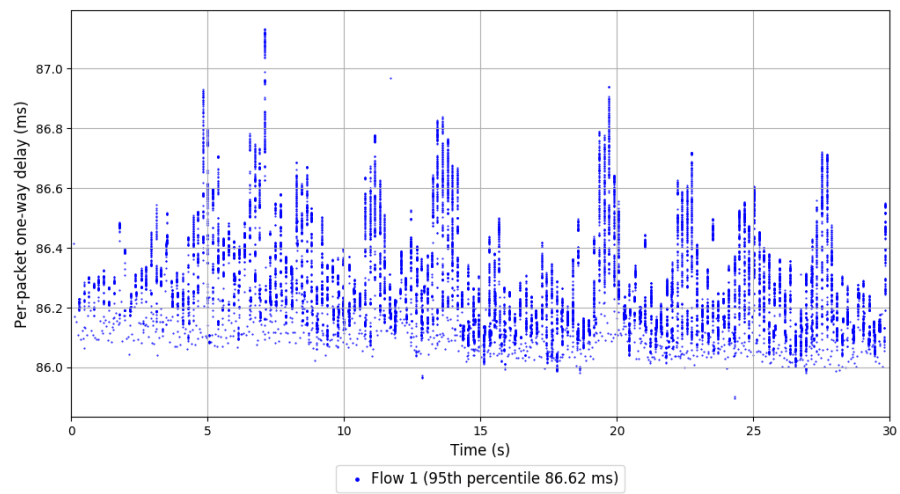
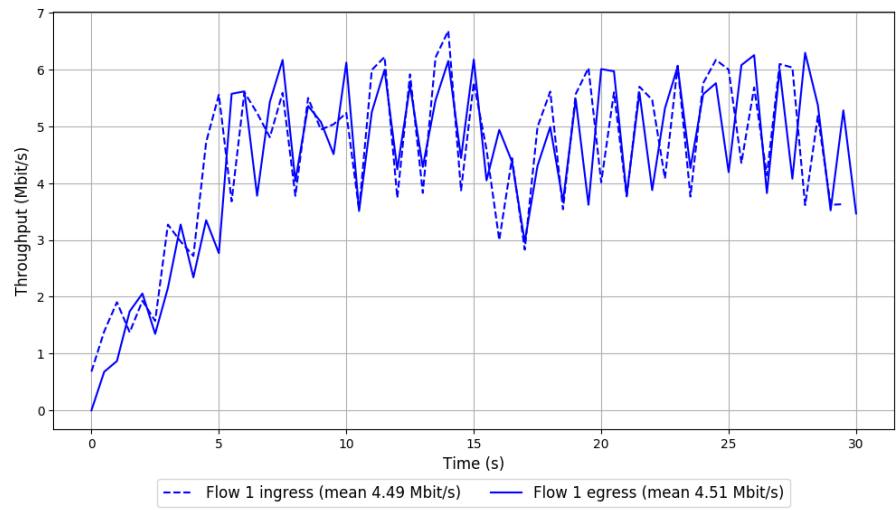
-- Flow 1:

Average throughput: 4.51 Mbit/s

95th percentile per-packet one-way delay: 86.620 ms

Loss rate: 0.06%

### Run 5: Report of Sprout — Data Link

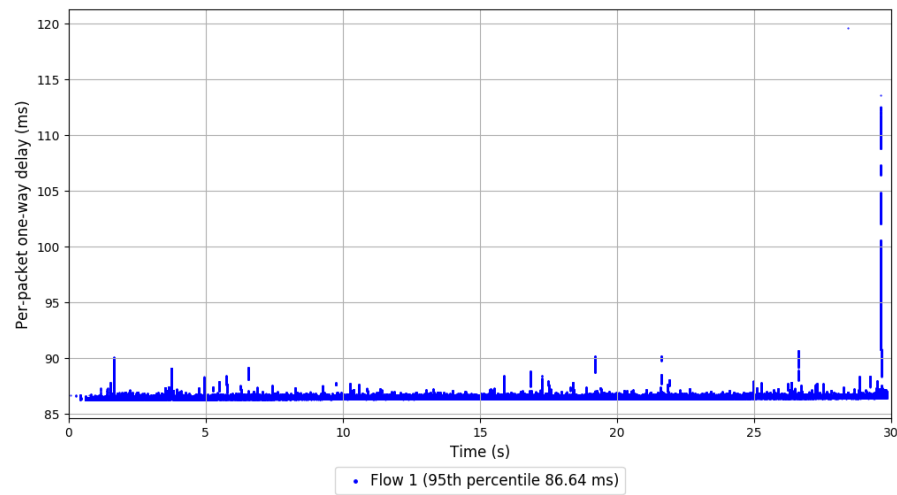
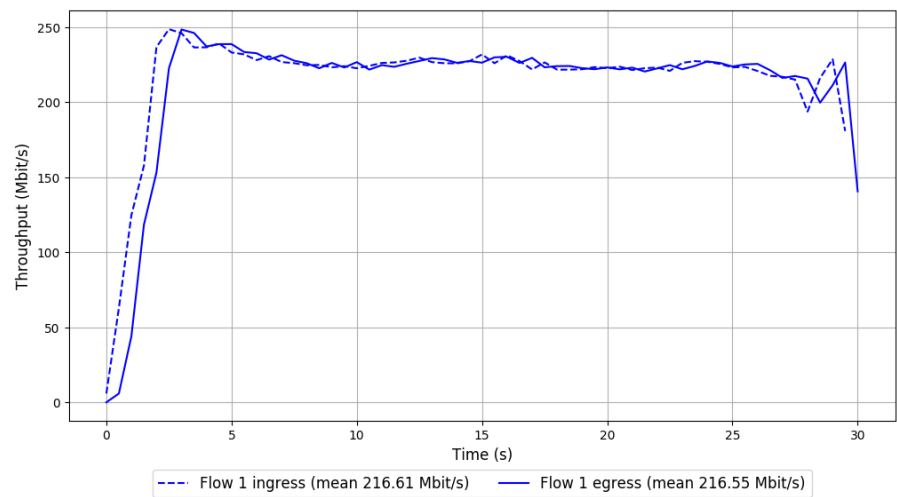


Run 1: Statistics of TaoVA-100x

Start at: 2018-09-07 09:01:57  
End at: 2018-09-07 09:02:27  
Local clock offset: 33.007 ms  
Remote clock offset: 33.145 ms

# Below is generated by plot.py at 2018-09-07 12:19:08  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 216.55 Mbit/s  
95th percentile per-packet one-way delay: 86.645 ms  
Loss rate: 0.60%  
-- Flow 1:  
Average throughput: 216.55 Mbit/s  
95th percentile per-packet one-way delay: 86.645 ms  
Loss rate: 0.60%

Run 1: Report of TaoVA-100x — Data Link





Run 2: Statistics of TaoVA-100x

Start at: 2018-09-07 09:28:36

End at: 2018-09-07 09:29:06

Local clock offset: 9.234 ms

Remote clock offset: 17.004 ms

# Below is generated by plot.py at 2018-09-07 12:19:12

# Datalink statistics

-- Total of 1 flow:

Average throughput: 217.79 Mbit/s

95th percentile per-packet one-way delay: 86.080 ms

Loss rate: 0.60%

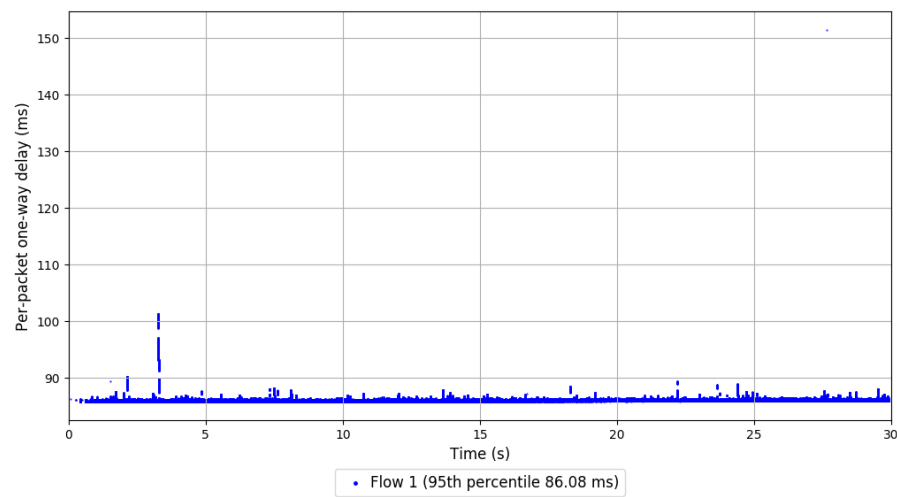
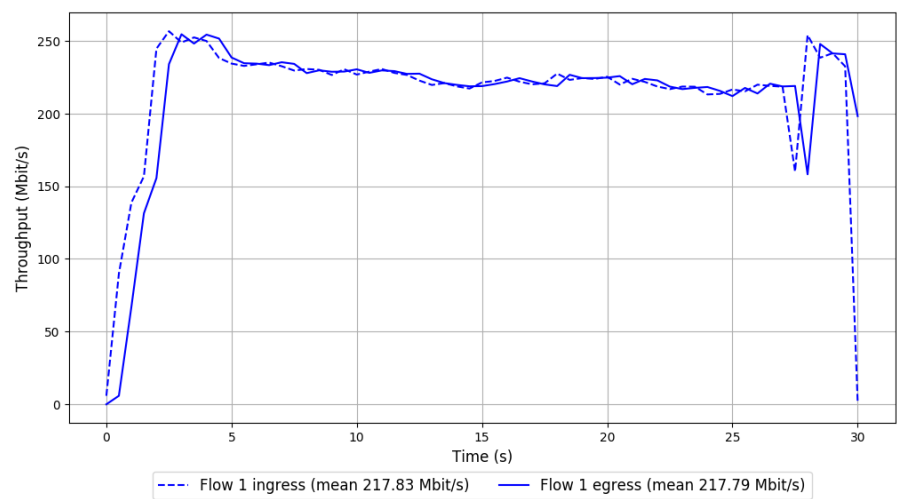
-- Flow 1:

Average throughput: 217.79 Mbit/s

95th percentile per-packet one-way delay: 86.080 ms

Loss rate: 0.60%

Run 2: Report of TaoVA-100x — Data Link



Run 3: Statistics of TaoVA-100x

Start at: 2018-09-07 09:55:11

End at: 2018-09-07 09:55:41

Local clock offset: 3.312 ms

Remote clock offset: 7.284 ms

# Below is generated by plot.py at 2018-09-07 12:19:23

# Datalink statistics

-- Total of 1 flow:

Average throughput: 220.13 Mbit/s

95th percentile per-packet one-way delay: 85.873 ms

Loss rate: 0.67%

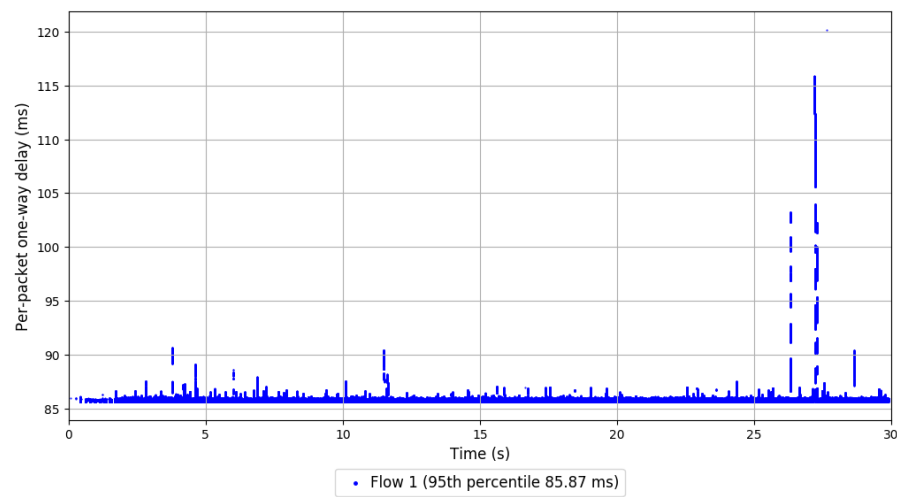
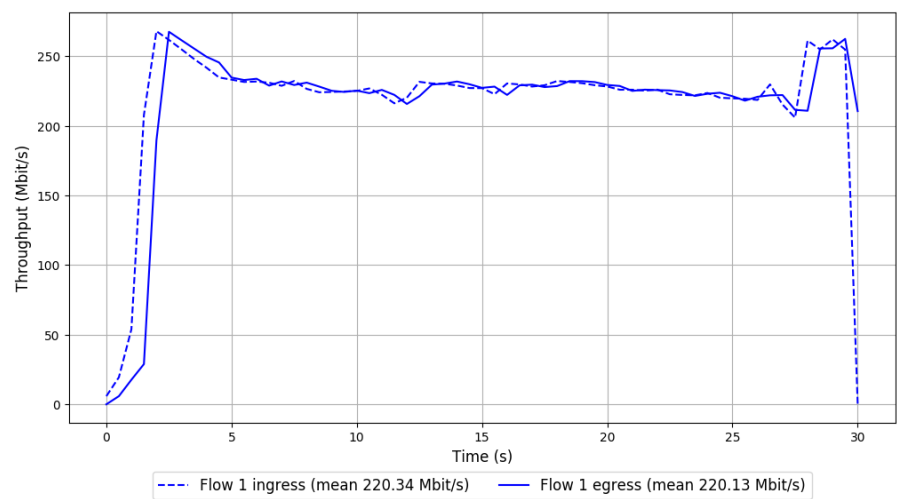
-- Flow 1:

Average throughput: 220.13 Mbit/s

95th percentile per-packet one-way delay: 85.873 ms

Loss rate: 0.67%

Run 3: Report of TaoVA-100x — Data Link



Run 4: Statistics of TaoVA-100x

Start at: 2018-09-07 10:21:35

End at: 2018-09-07 10:22:05

Local clock offset: 1.511 ms

Remote clock offset: 3.732 ms

# Below is generated by plot.py at 2018-09-07 12:19:37

# Datalink statistics

-- Total of 1 flow:

Average throughput: 218.90 Mbit/s

95th percentile per-packet one-way delay: 85.619 ms

Loss rate: 0.67%

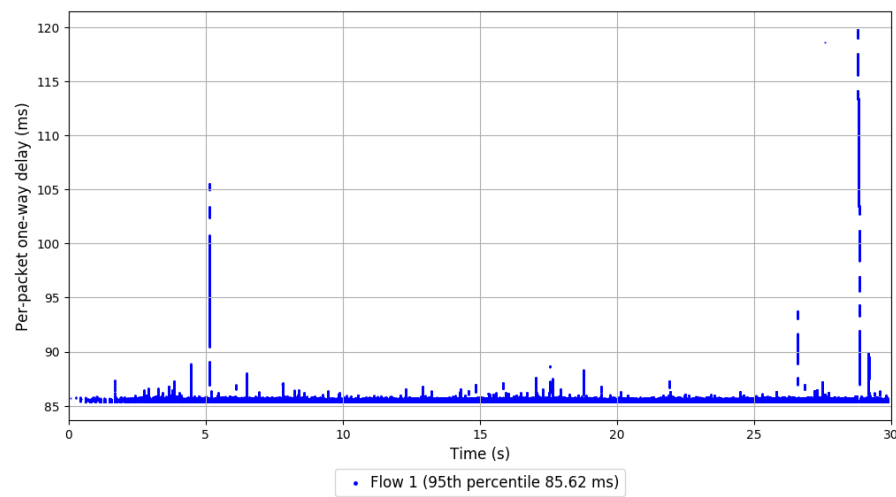
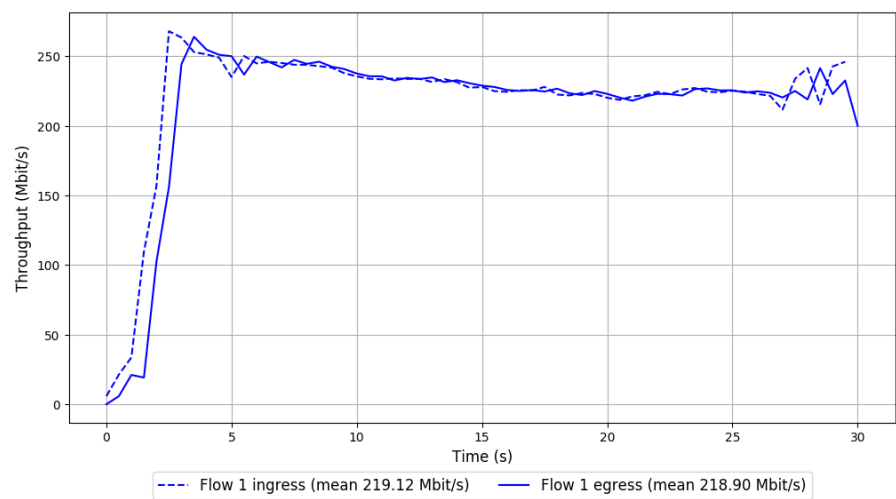
-- Flow 1:

Average throughput: 218.90 Mbit/s

95th percentile per-packet one-way delay: 85.619 ms

Loss rate: 0.67%

Run 4: Report of TaoVA-100x — Data Link



Run 5: Statistics of TaoVA-100x

Start at: 2018-09-07 10:48:11

End at: 2018-09-07 10:48:41

Local clock offset: 1.295 ms

Remote clock offset: 2.53 ms

# Below is generated by plot.py at 2018-09-07 12:20:25

# Datalink statistics

-- Total of 1 flow:

Average throughput: 224.23 Mbit/s

95th percentile per-packet one-way delay: 85.913 ms

Loss rate: 0.63%

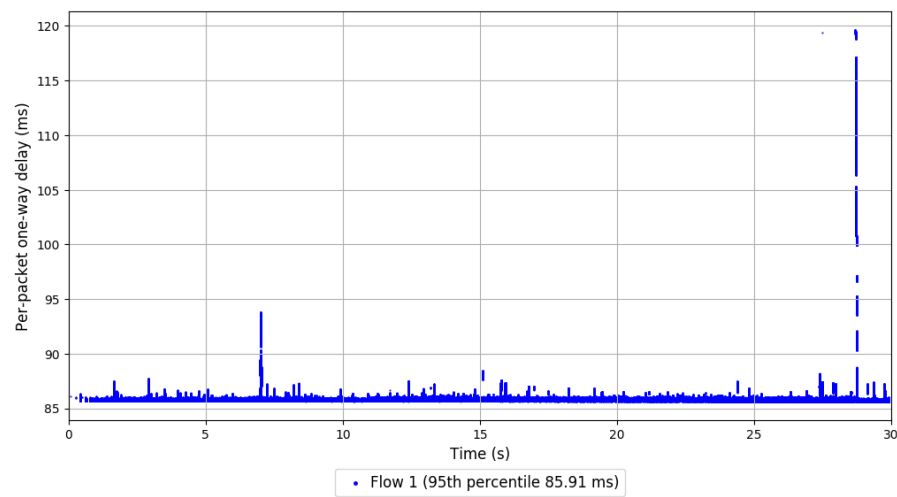
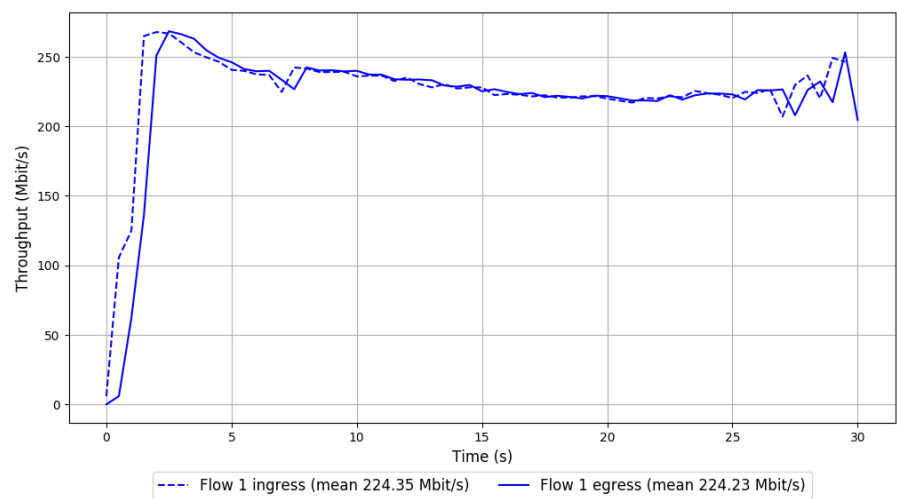
-- Flow 1:

Average throughput: 224.23 Mbit/s

95th percentile per-packet one-way delay: 85.913 ms

Loss rate: 0.63%

Run 5: Report of TaoVA-100x — Data Link



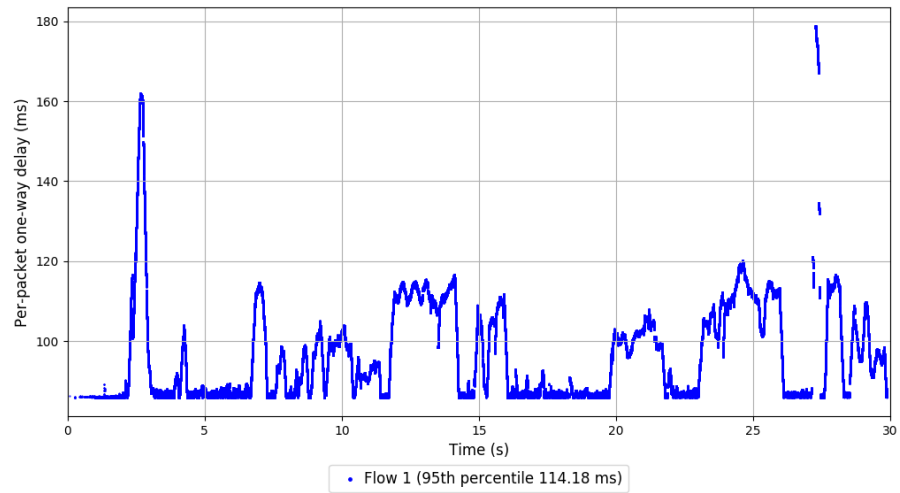
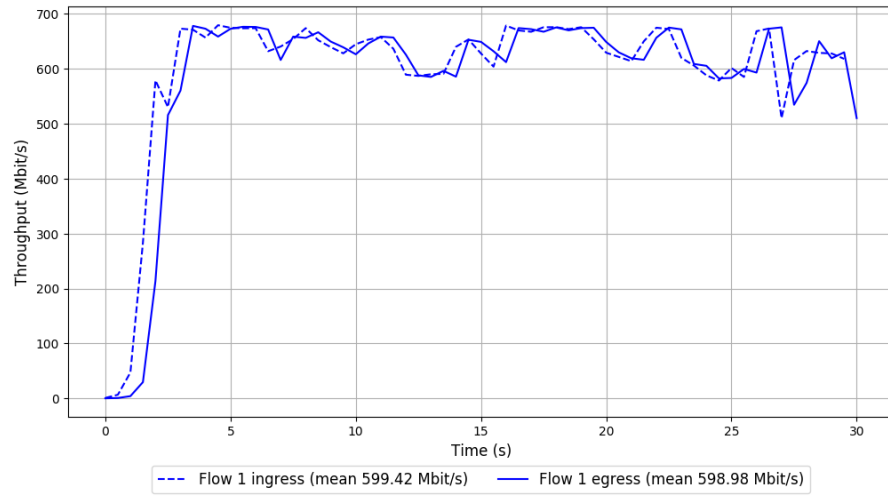


Run 1: Statistics of TCP Vegas

Start at: 2018-09-07 09:06:40  
End at: 2018-09-07 09:07:10  
Local clock offset: 20.422 ms  
Remote clock offset: 22.192 ms

# Below is generated by plot.py at 2018-09-07 12:25:36  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 598.98 Mbit/s  
95th percentile per-packet one-way delay: 114.177 ms  
Loss rate: 0.65%  
-- Flow 1:  
Average throughput: 598.98 Mbit/s  
95th percentile per-packet one-way delay: 114.177 ms  
Loss rate: 0.65%

### Run 1: Report of TCP Vegas — Data Link

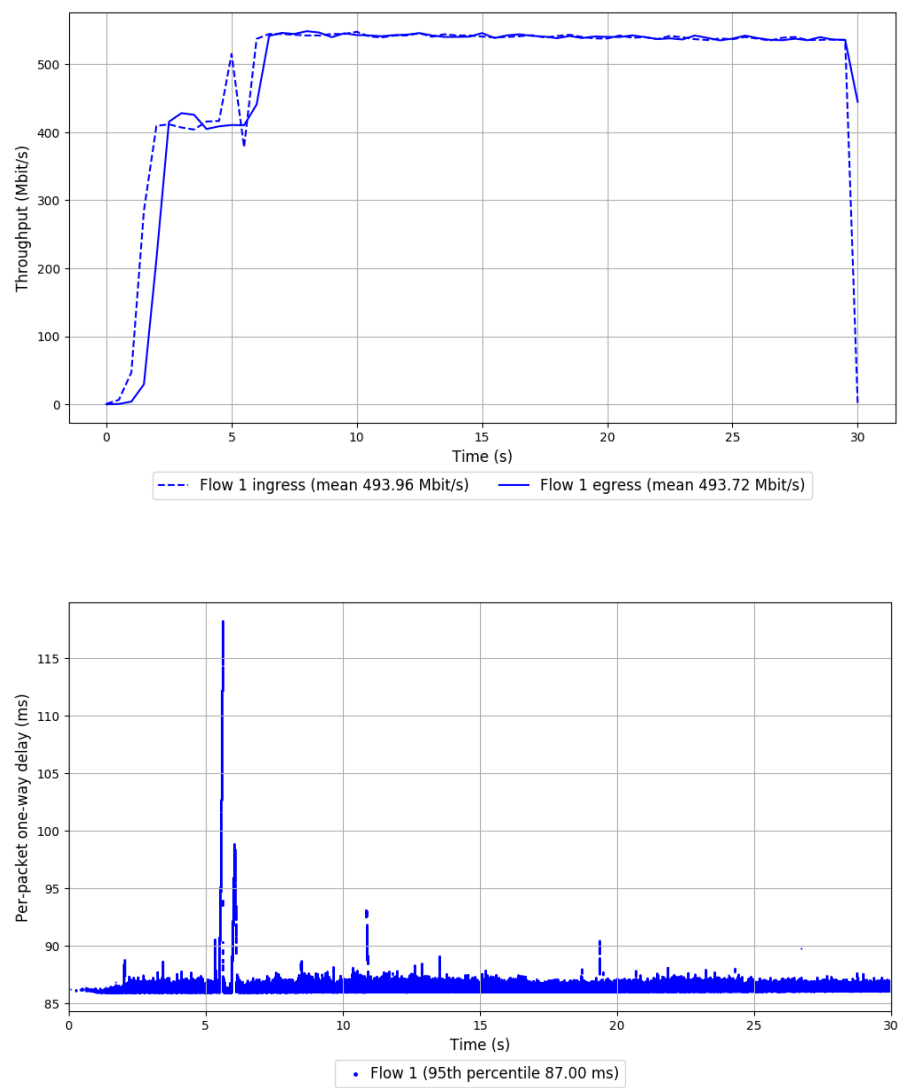


Run 2: Statistics of TCP Vegas

Start at: 2018-09-07 09:33:23  
End at: 2018-09-07 09:33:53  
Local clock offset: 10.157 ms  
Remote clock offset: 19.089 ms

# Below is generated by plot.py at 2018-09-07 12:25:40  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 493.72 Mbit/s  
95th percentile per-packet one-way delay: 87.002 ms  
Loss rate: 0.62%  
-- Flow 1:  
Average throughput: 493.72 Mbit/s  
95th percentile per-packet one-way delay: 87.002 ms  
Loss rate: 0.62%

Run 2: Report of TCP Vegas — Data Link



Run 3: Statistics of TCP Vegas

Start at: 2018-09-07 09:59:58

End at: 2018-09-07 10:00:28

Local clock offset: 3.484 ms

Remote clock offset: 7.811 ms

# Below is generated by plot.py at 2018-09-07 12:25:40

# Datalink statistics

-- Total of 1 flow:

Average throughput: 344.50 Mbit/s

95th percentile per-packet one-way delay: 86.825 ms

Loss rate: 0.56%

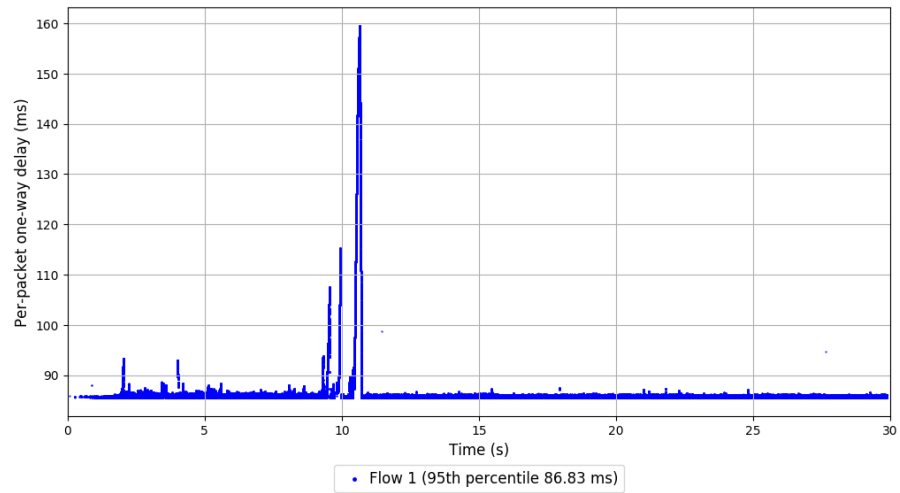
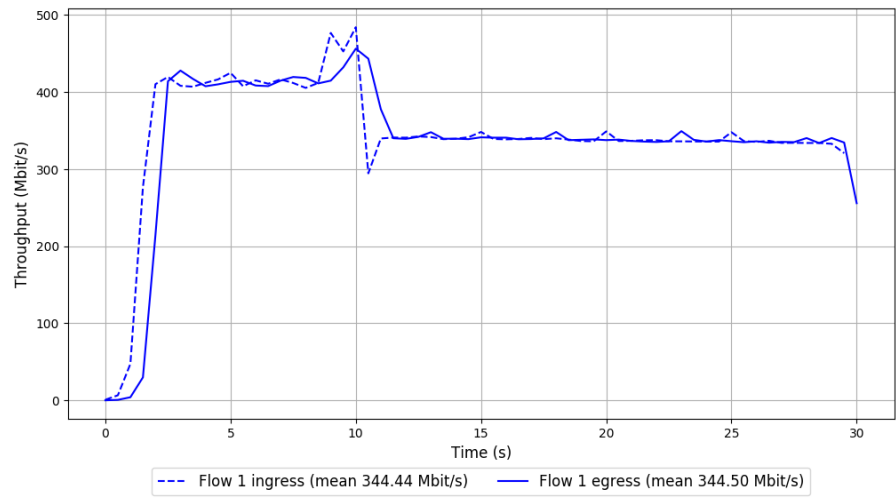
-- Flow 1:

Average throughput: 344.50 Mbit/s

95th percentile per-packet one-way delay: 86.825 ms

Loss rate: 0.56%

### Run 3: Report of TCP Vegas — Data Link



Run 4: Statistics of TCP Vegas

Start at: 2018-09-07 10:26:15

End at: 2018-09-07 10:26:45

Local clock offset: 1.642 ms

Remote clock offset: 3.43 ms

# Below is generated by plot.py at 2018-09-07 12:28:40

# Datalink statistics

-- Total of 1 flow:

Average throughput: 556.40 Mbit/s

95th percentile per-packet one-way delay: 113.507 ms

Loss rate: 0.70%

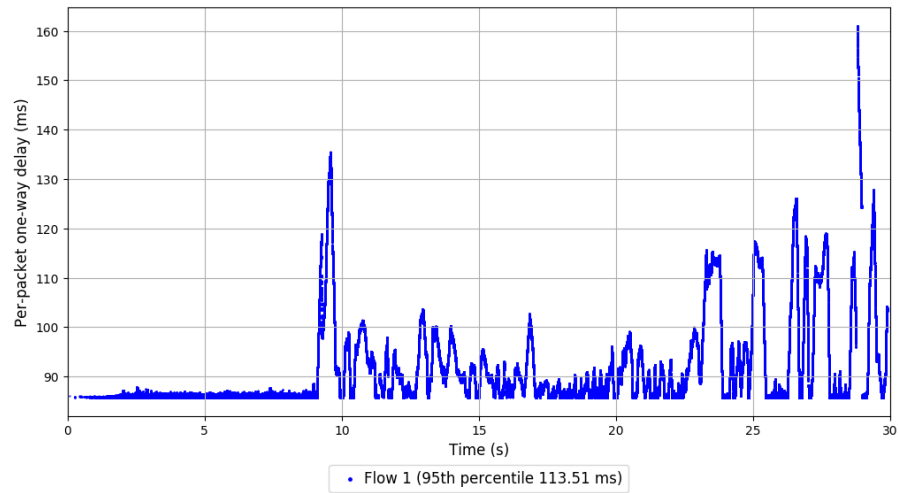
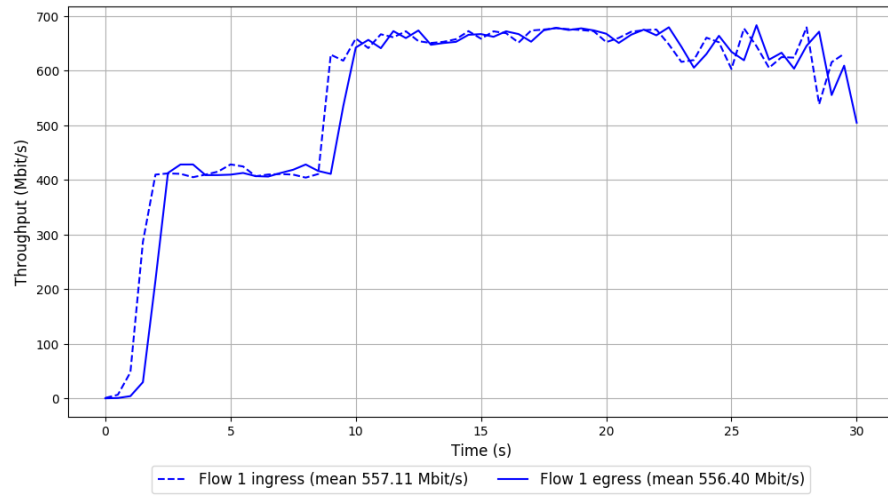
-- Flow 1:

Average throughput: 556.40 Mbit/s

95th percentile per-packet one-way delay: 113.507 ms

Loss rate: 0.70%

#### Run 4: Report of TCP Vegas — Data Link





Run 5: Statistics of TCP Vegas

Start at: 2018-09-07 10:52:55

End at: 2018-09-07 10:53:25

Local clock offset: 1.091 ms

Remote clock offset: 1.642 ms

# Below is generated by plot.py at 2018-09-07 12:28:40

# Datalink statistics

-- Total of 1 flow:

Average throughput: 485.81 Mbit/s

95th percentile per-packet one-way delay: 86.762 ms

Loss rate: 0.64%

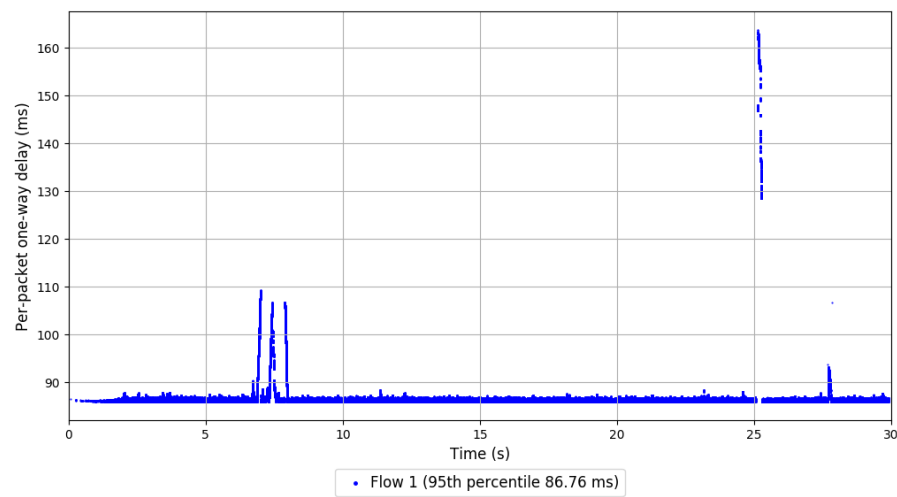
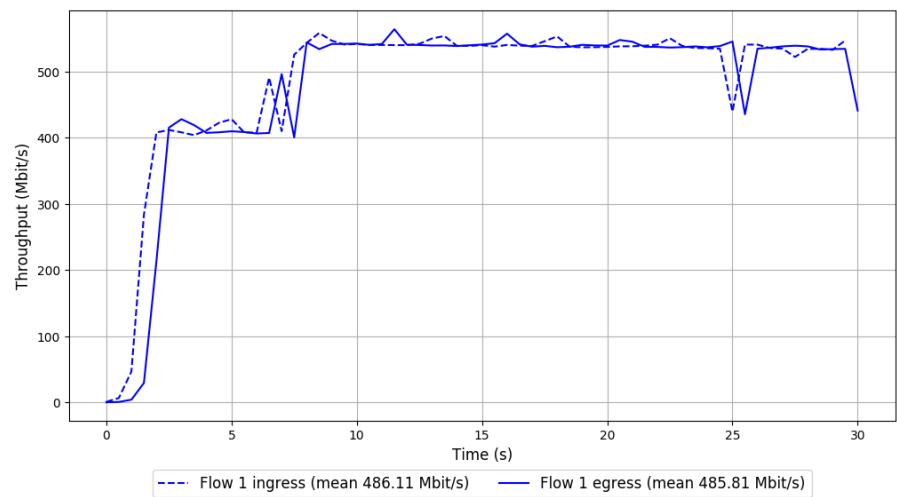
-- Flow 1:

Average throughput: 485.81 Mbit/s

95th percentile per-packet one-way delay: 86.762 ms

Loss rate: 0.64%

Run 5: Report of TCP Vegas — Data Link

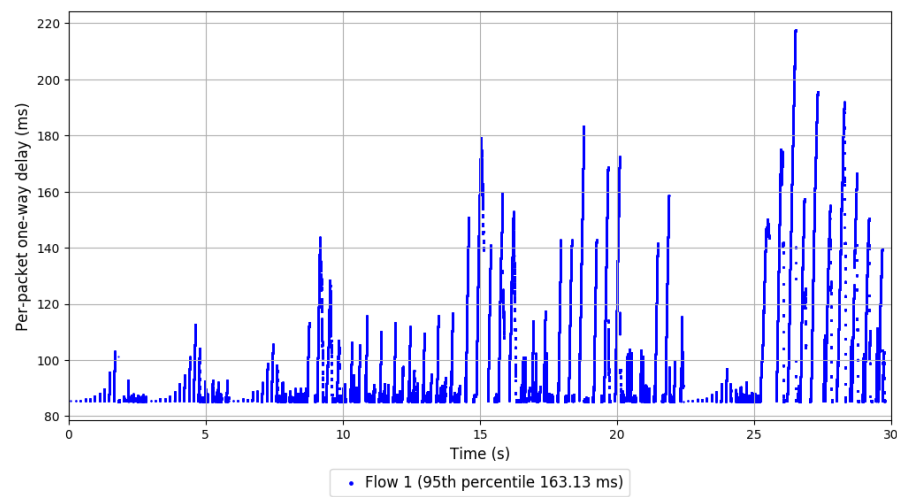
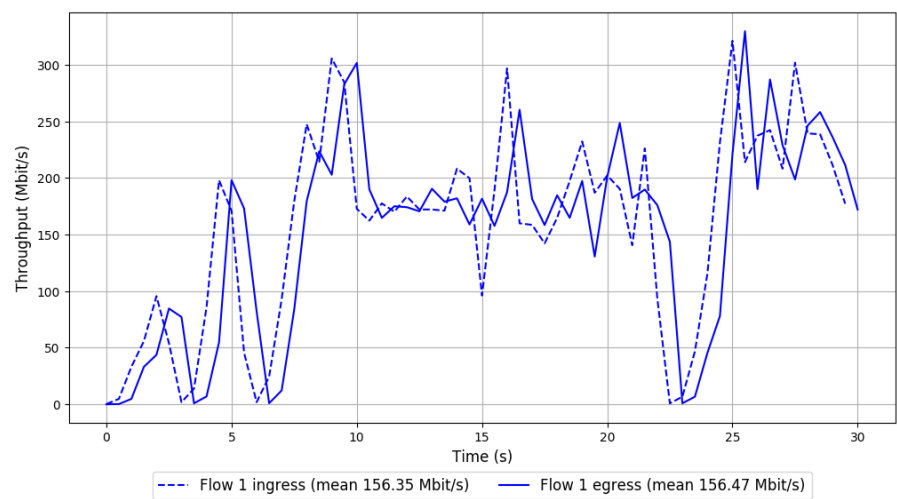


Run 1: Statistics of Verus

Start at: 2018-09-07 08:55:38  
End at: 2018-09-07 08:56:08  
Local clock offset: 35.091 ms  
Remote clock offset: 34.154 ms

# Below is generated by plot.py at 2018-09-07 12:28:40  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 156.47 Mbit/s  
95th percentile per-packet one-way delay: 163.130 ms  
Loss rate: 0.88%  
-- Flow 1:  
Average throughput: 156.47 Mbit/s  
95th percentile per-packet one-way delay: 163.130 ms  
Loss rate: 0.88%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2018-09-07 09:22:01

End at: 2018-09-07 09:22:31

Local clock offset: 9.214 ms

Remote clock offset: 15.02 ms

# Below is generated by plot.py at 2018-09-07 12:28:40

# Datalink statistics

-- Total of 1 flow:

Average throughput: 185.84 Mbit/s

95th percentile per-packet one-way delay: 222.139 ms

Loss rate: 2.91%

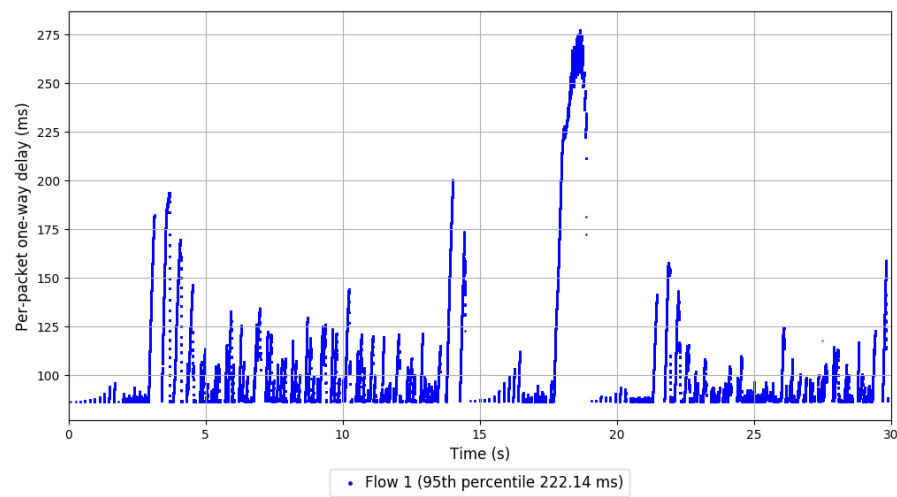
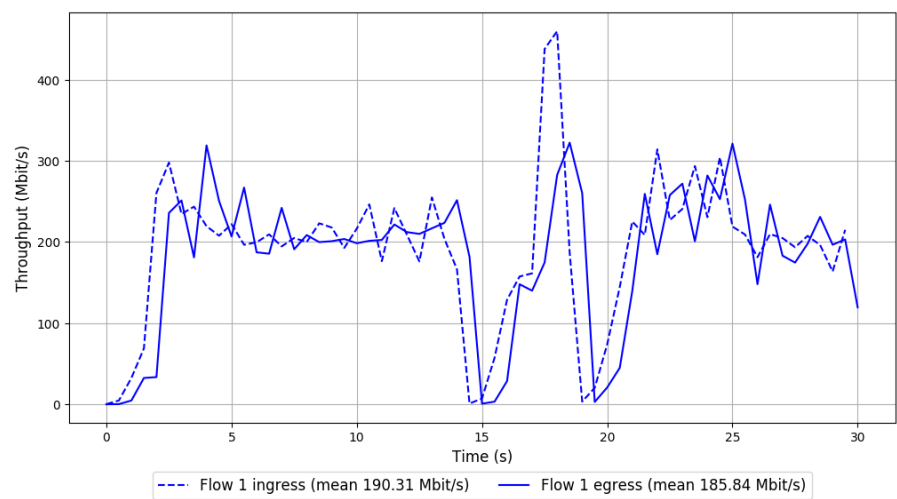
-- Flow 1:

Average throughput: 185.84 Mbit/s

95th percentile per-packet one-way delay: 222.139 ms

Loss rate: 2.91%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2018-09-07 09:48:32

End at: 2018-09-07 09:49:02

Local clock offset: 3.901 ms

Remote clock offset: 7.533 ms

# Below is generated by plot.py at 2018-09-07 12:28:40

# Datalink statistics

-- Total of 1 flow:

Average throughput: 218.31 Mbit/s

95th percentile per-packet one-way delay: 229.363 ms

Loss rate: 12.52%

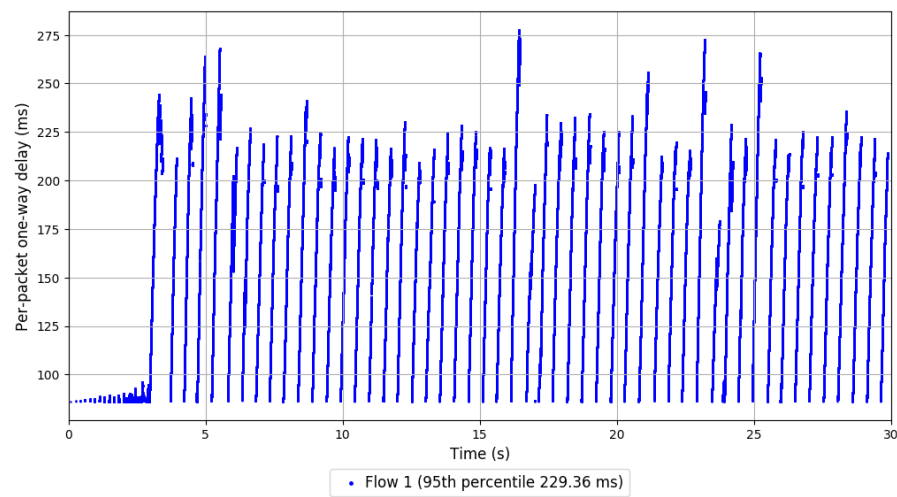
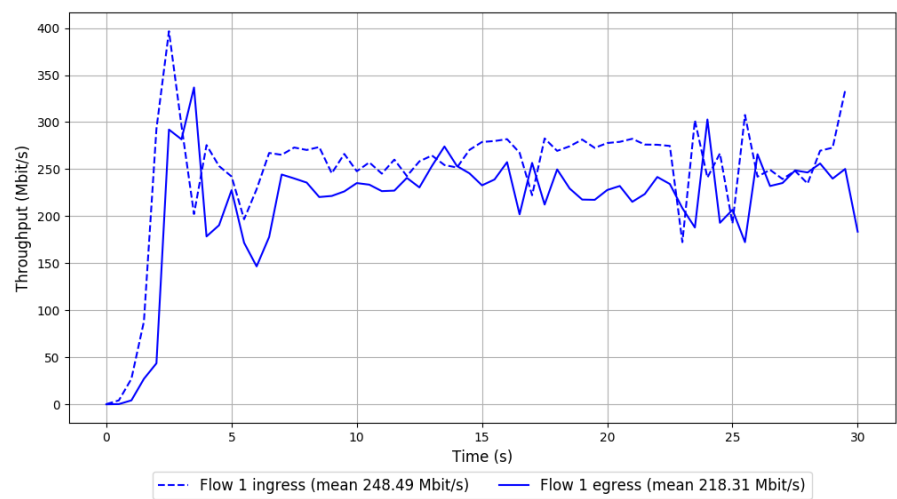
-- Flow 1:

Average throughput: 218.31 Mbit/s

95th percentile per-packet one-way delay: 229.363 ms

Loss rate: 12.52%

Run 3: Report of Verus — Data Link





Run 4: Statistics of Verus

Start at: 2018-09-07 10:15:05

End at: 2018-09-07 10:15:35

Local clock offset: 2.436 ms

Remote clock offset: 5.271 ms

# Below is generated by plot.py at 2018-09-07 12:29:39

# Datalink statistics

-- Total of 1 flow:

Average throughput: 168.76 Mbit/s

95th percentile per-packet one-way delay: 149.579 ms

Loss rate: 0.77%

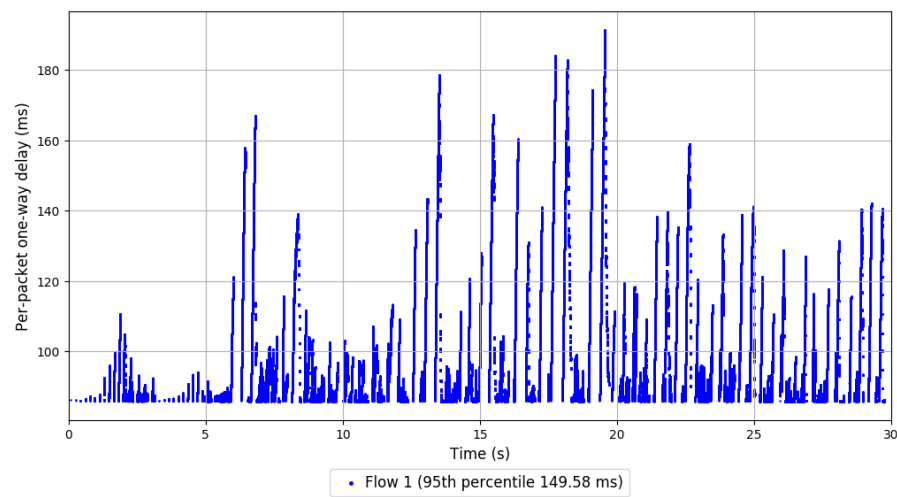
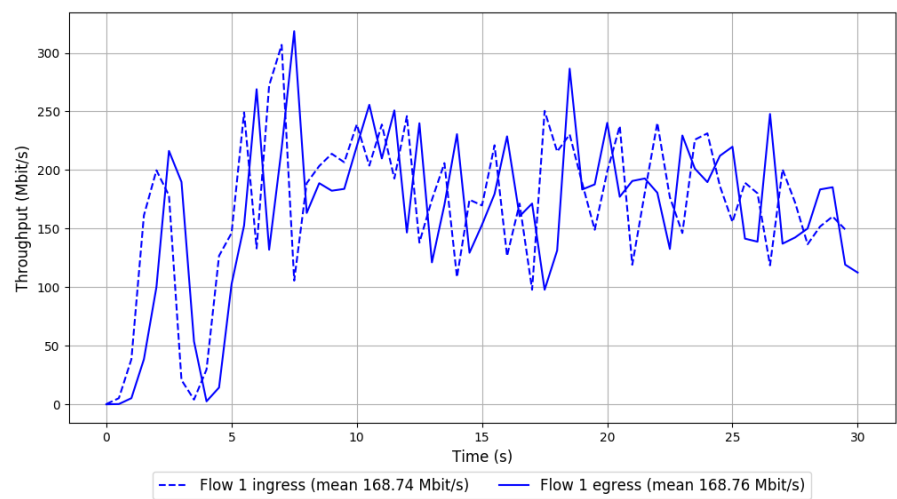
-- Flow 1:

Average throughput: 168.76 Mbit/s

95th percentile per-packet one-way delay: 149.579 ms

Loss rate: 0.77%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2018-09-07 10:41:35

End at: 2018-09-07 10:42:05

Local clock offset: 1.865 ms

Remote clock offset: 4.389 ms

# Below is generated by plot.py at 2018-09-07 12:30:58

# Datalink statistics

-- Total of 1 flow:

Average throughput: 179.73 Mbit/s

95th percentile per-packet one-way delay: 235.810 ms

Loss rate: 12.92%

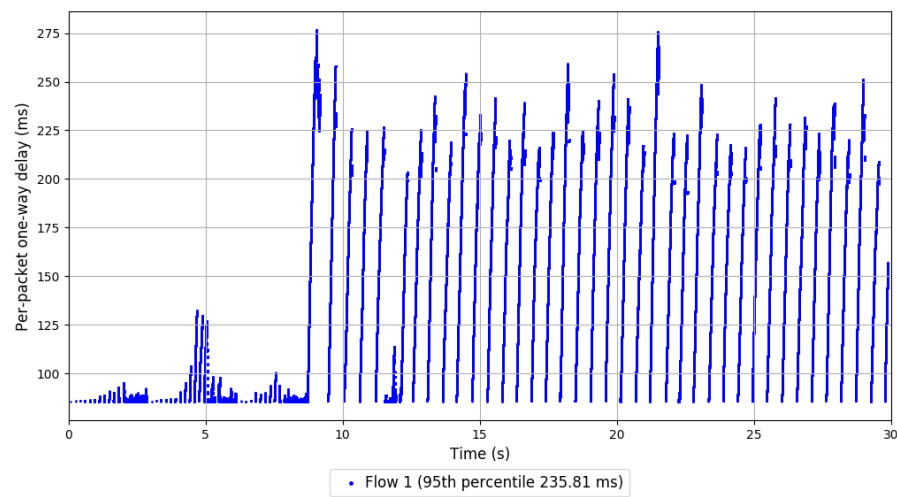
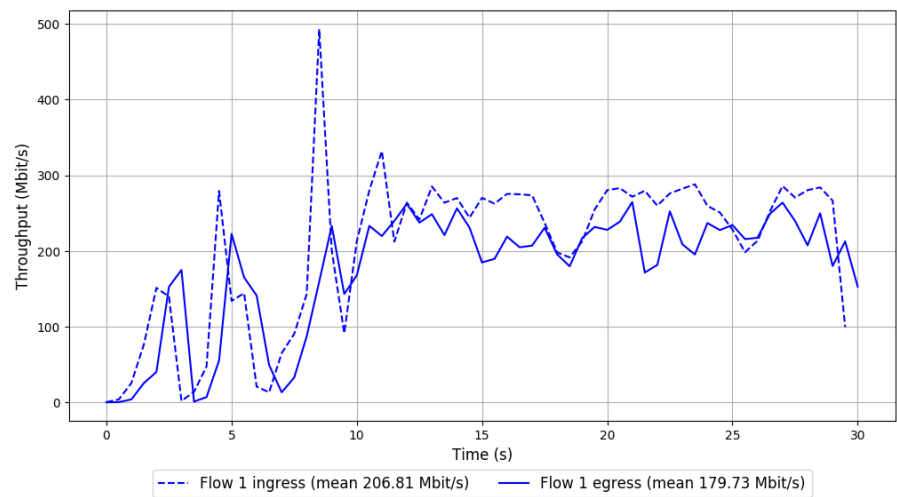
-- Flow 1:

Average throughput: 179.73 Mbit/s

95th percentile per-packet one-way delay: 235.810 ms

Loss rate: 12.92%

Run 5: Report of Verus — Data Link

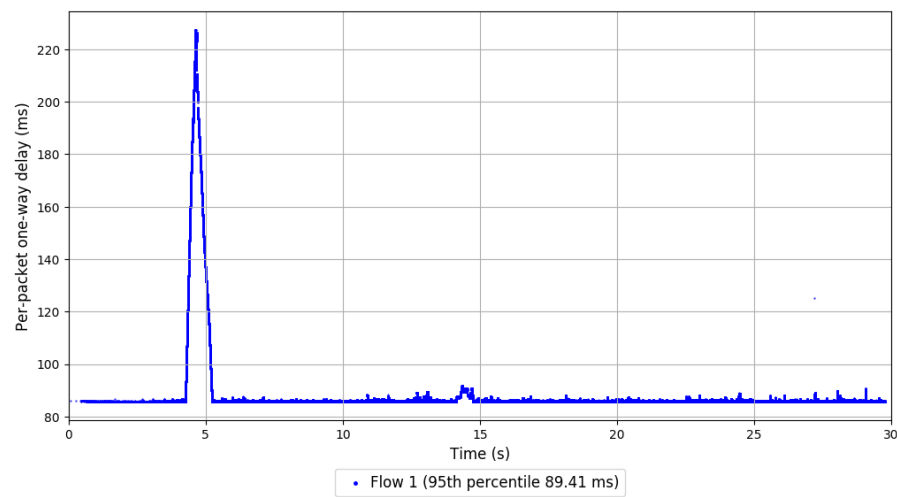
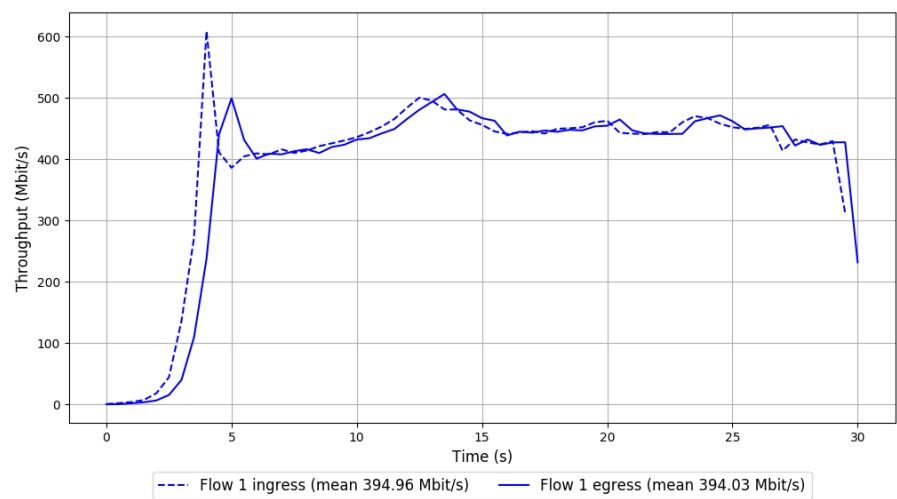


Run 1: Statistics of PCC-Vivace

Start at: 2018-09-07 08:52:23  
End at: 2018-09-07 08:52:53  
Local clock offset: 31.937 ms  
Remote clock offset: 30.638 ms

# Below is generated by plot.py at 2018-09-07 12:31:47  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 394.03 Mbit/s  
95th percentile per-packet one-way delay: 89.413 ms  
Loss rate: 0.81%  
-- Flow 1:  
Average throughput: 394.03 Mbit/s  
95th percentile per-packet one-way delay: 89.413 ms  
Loss rate: 0.81%

Run 1: Report of PCC-Vivace — Data Link



Run 2: Statistics of PCC-Vivace

Start at: 2018-09-07 09:18:46

End at: 2018-09-07 09:19:16

Local clock offset: 9.763 ms

Remote clock offset: 14.667 ms

# Below is generated by plot.py at 2018-09-07 12:31:51

# Datalink statistics

-- Total of 1 flow:

Average throughput: 396.76 Mbit/s

95th percentile per-packet one-way delay: 101.446 ms

Loss rate: 0.66%

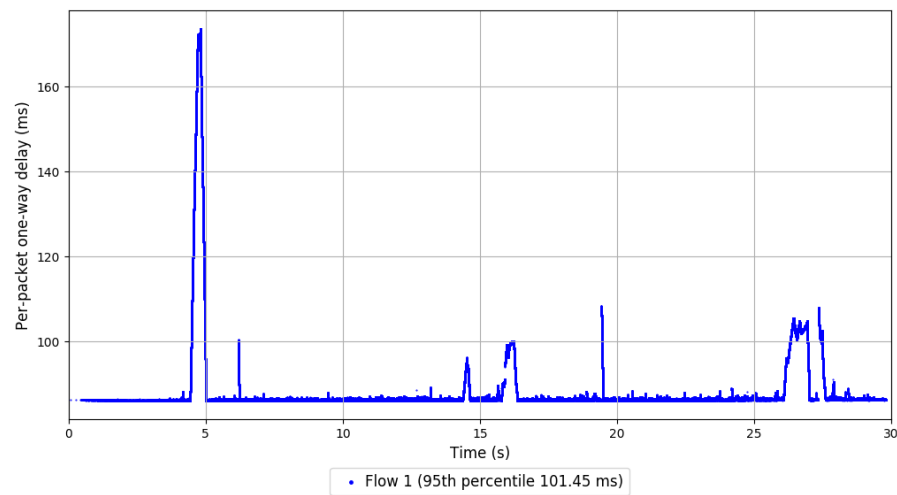
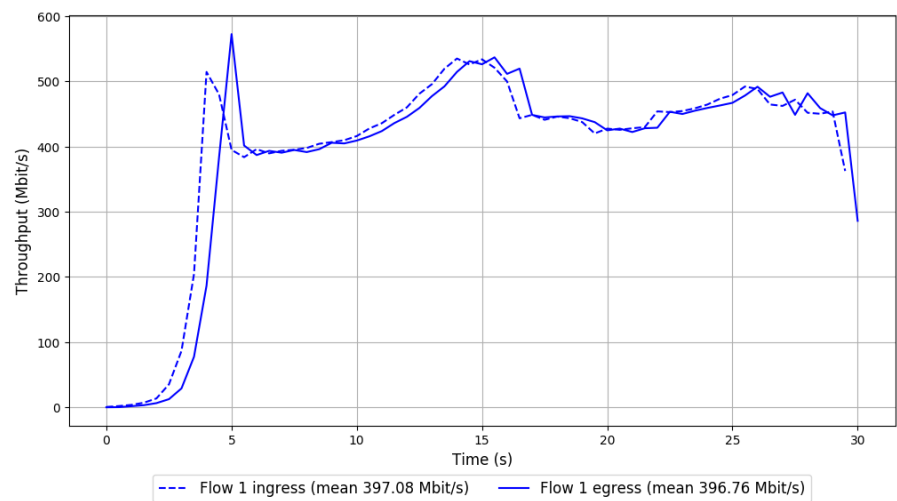
-- Flow 1:

Average throughput: 396.76 Mbit/s

95th percentile per-packet one-way delay: 101.446 ms

Loss rate: 0.66%

Run 2: Report of PCC-Vivace — Data Link





Run 3: Statistics of PCC-Vivace

Start at: 2018-09-07 09:45:21

End at: 2018-09-07 09:45:51

Local clock offset: 4.384 ms

Remote clock offset: 8.344 ms

# Below is generated by plot.py at 2018-09-07 12:31:53

# Datalink statistics

-- Total of 1 flow:

Average throughput: 402.06 Mbit/s

95th percentile per-packet one-way delay: 89.620 ms

Loss rate: 0.69%

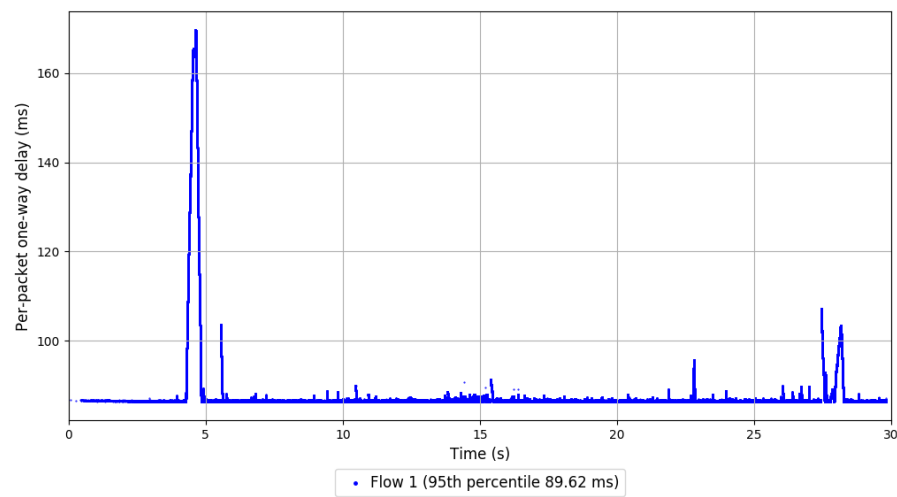
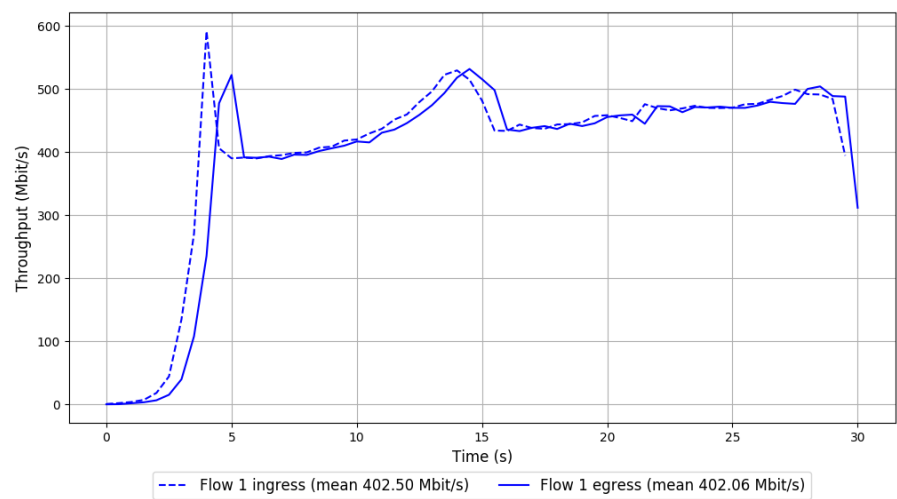
-- Flow 1:

Average throughput: 402.06 Mbit/s

95th percentile per-packet one-way delay: 89.620 ms

Loss rate: 0.69%

Run 3: Report of PCC-Vivace — Data Link



Run 4: Statistics of PCC-Vivace

Start at: 2018-09-07 10:11:55

End at: 2018-09-07 10:12:25

Local clock offset: 3.096 ms

Remote clock offset: 6.83 ms

# Below is generated by plot.py at 2018-09-07 12:32:11

# Datalink statistics

-- Total of 1 flow:

Average throughput: 372.15 Mbit/s

95th percentile per-packet one-way delay: 88.235 ms

Loss rate: 0.63%

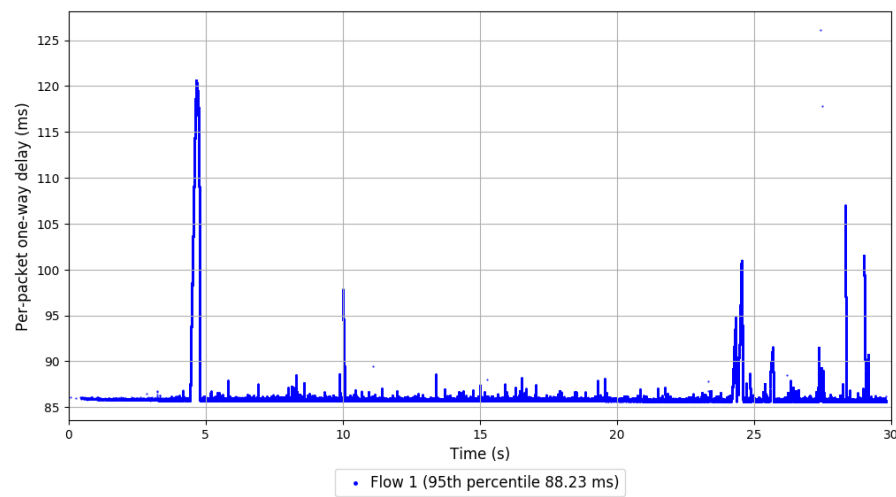
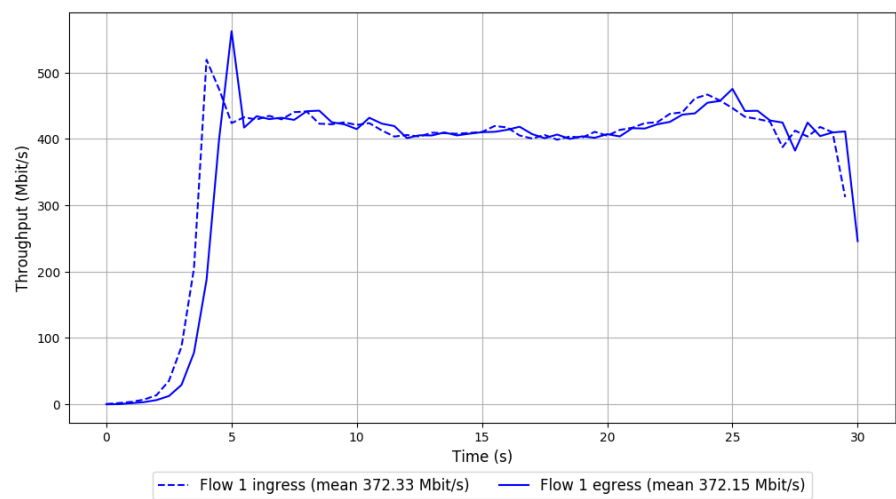
-- Flow 1:

Average throughput: 372.15 Mbit/s

95th percentile per-packet one-way delay: 88.235 ms

Loss rate: 0.63%

Run 4: Report of PCC-Vivace — Data Link



Run 5: Statistics of PCC-Vivace

Start at: 2018-09-07 10:38:21

End at: 2018-09-07 10:38:51

Local clock offset: 1.926 ms

Remote clock offset: 4.082 ms

# Below is generated by plot.py at 2018-09-07 12:32:14

# Datalink statistics

-- Total of 1 flow:

Average throughput: 379.39 Mbit/s

95th percentile per-packet one-way delay: 93.857 ms

Loss rate: 0.73%

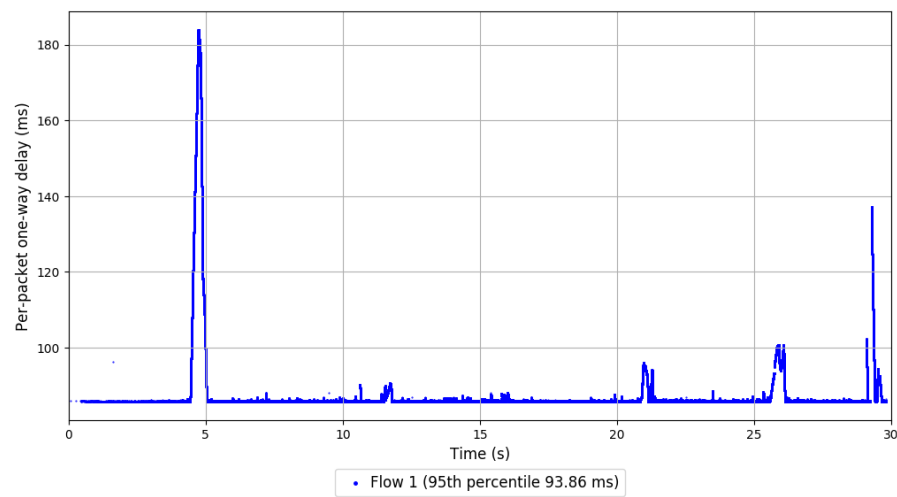
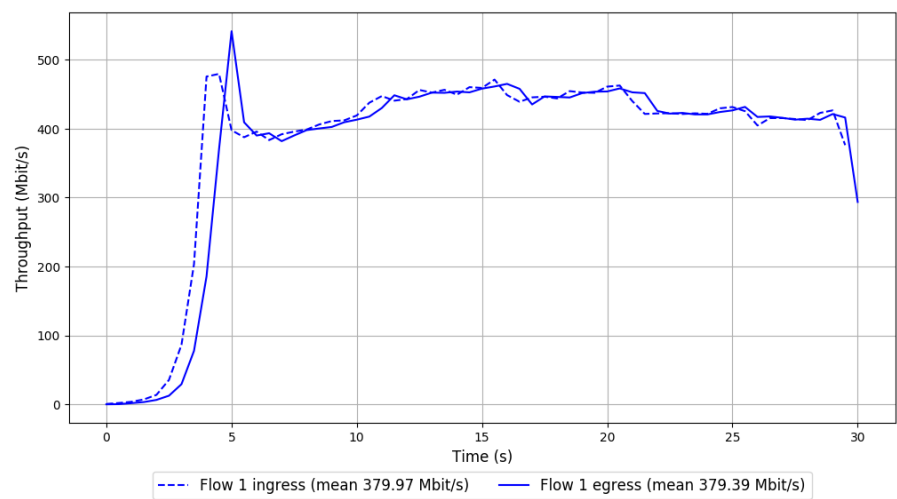
-- Flow 1:

Average throughput: 379.39 Mbit/s

95th percentile per-packet one-way delay: 93.857 ms

Loss rate: 0.73%

Run 5: Report of PCC-Vivace — Data Link

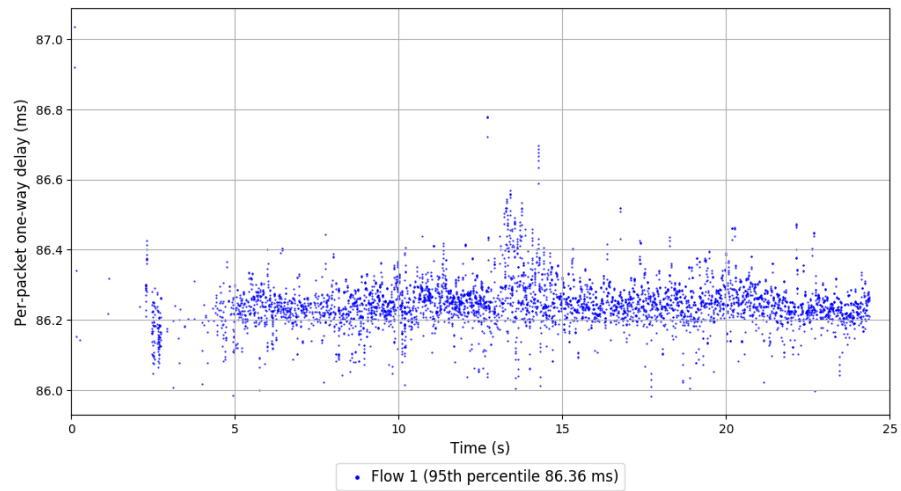
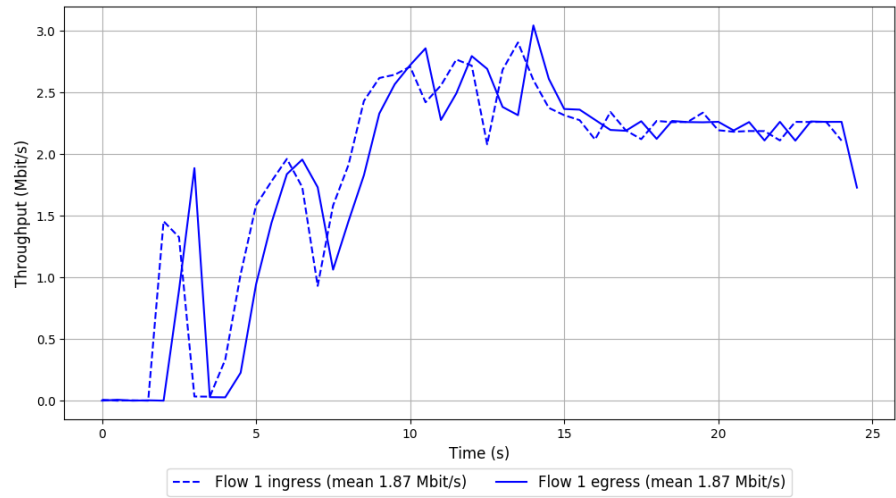


Run 1: Statistics of WebRTC media

Start at: 2018-09-07 08:49:33  
End at: 2018-09-07 08:50:03  
Local clock offset: 29.07 ms  
Remote clock offset: 27.945 ms

# Below is generated by plot.py at 2018-09-07 12:32:14  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 1.87 Mbit/s  
95th percentile per-packet one-way delay: 86.360 ms  
Loss rate: 0.83%  
-- Flow 1:  
Average throughput: 1.87 Mbit/s  
95th percentile per-packet one-way delay: 86.360 ms  
Loss rate: 0.83%

# Run 1: Report of WebRTC media — Data Link



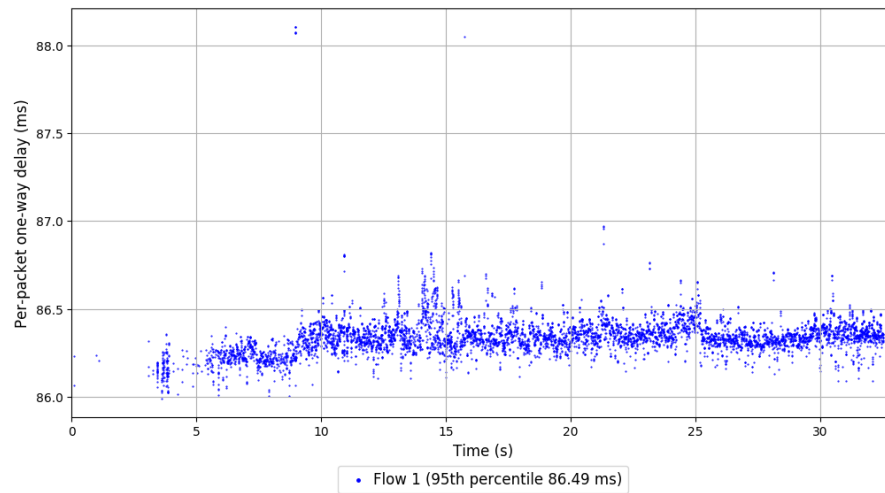
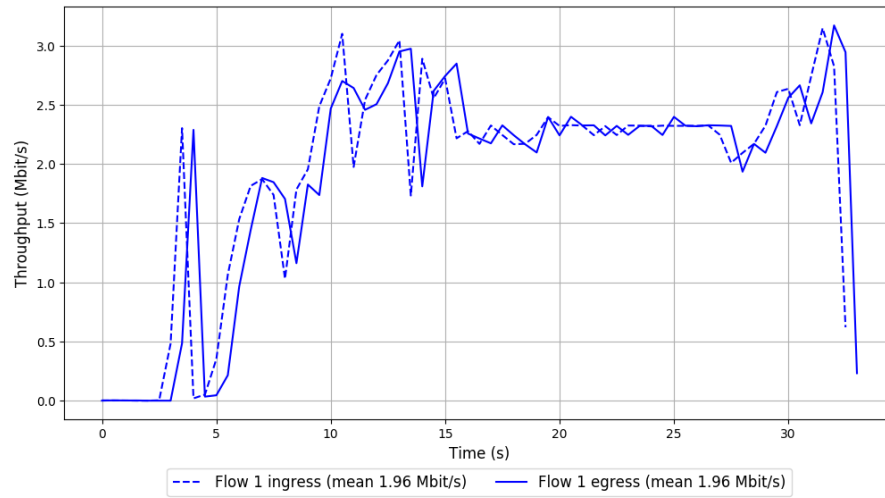


Run 2: Statistics of WebRTC media

Start at: 2018-09-07 09:15:53  
End at: 2018-09-07 09:16:23  
Local clock offset: 10.81 ms  
Remote clock offset: 14.856 ms

# Below is generated by plot.py at 2018-09-07 12:32:14  
# Datalink statistics  
-- Total of 1 flow:  
Average throughput: 1.96 Mbit/s  
95th percentile per-packet one-way delay: 86.492 ms  
Loss rate: 0.61%  
-- Flow 1:  
Average throughput: 1.96 Mbit/s  
95th percentile per-packet one-way delay: 86.492 ms  
Loss rate: 0.61%

## Run 2: Report of WebRTC media — Data Link



Run 3: Statistics of WebRTC media

Start at: 2018-09-07 09:42:30

End at: 2018-09-07 09:43:00

Local clock offset: 4.788 ms

Remote clock offset: 9.794 ms

# Below is generated by plot.py at 2018-09-07 12:32:14

# Datalink statistics

-- Total of 1 flow:

Average throughput: 1.99 Mbit/s

95th percentile per-packet one-way delay: 86.161 ms

Loss rate: 0.63%

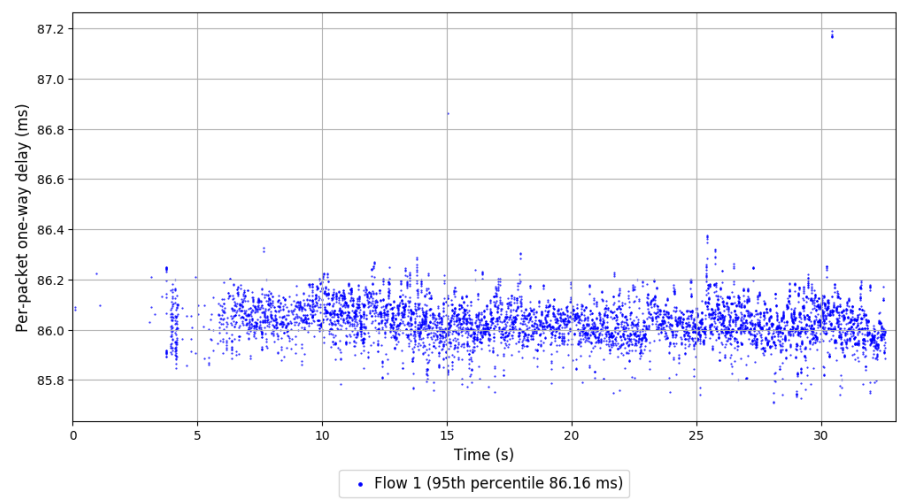
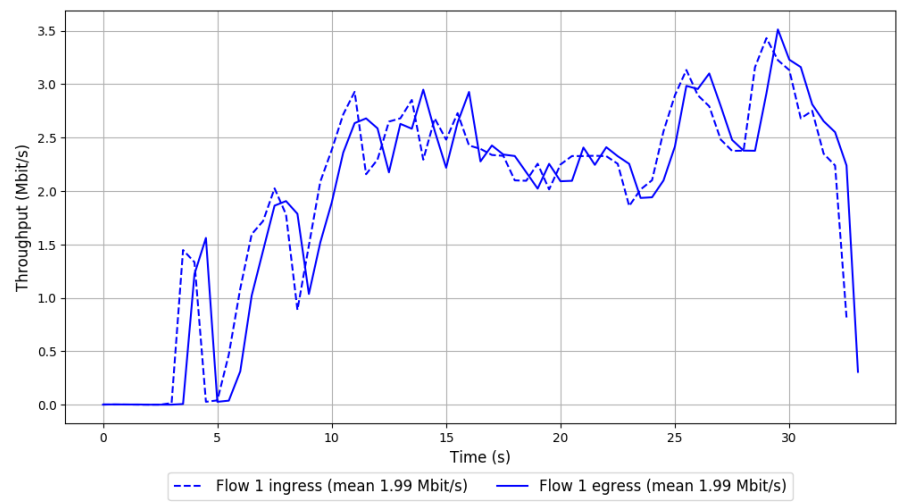
-- Flow 1:

Average throughput: 1.99 Mbit/s

95th percentile per-packet one-way delay: 86.161 ms

Loss rate: 0.63%

Run 3: Report of WebRTC media — Data Link



Run 4: Statistics of WebRTC media

Start at: 2018-09-07 10:09:02

End at: 2018-09-07 10:09:32

Local clock offset: 4.311 ms

Remote clock offset: 9.067 ms

# Below is generated by plot.py at 2018-09-07 12:32:14

# Datalink statistics

-- Total of 1 flow:

Average throughput: 1.86 Mbit/s

95th percentile per-packet one-way delay: 86.136 ms

Loss rate: 0.69%

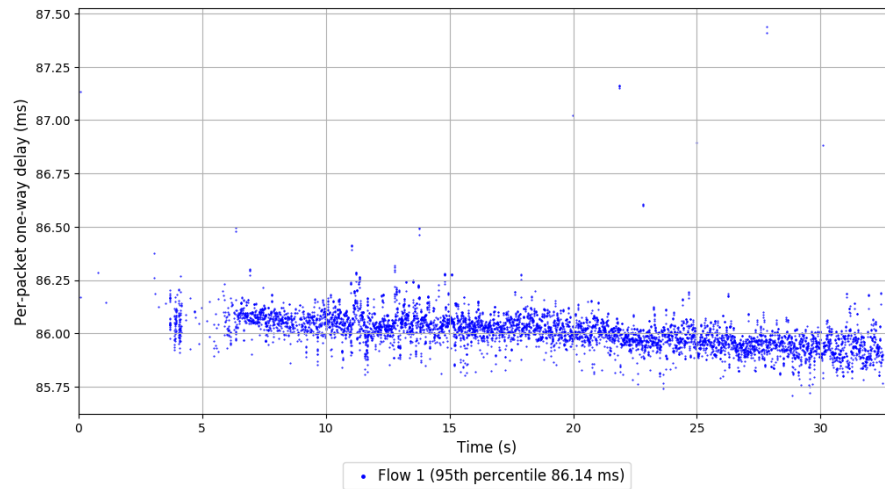
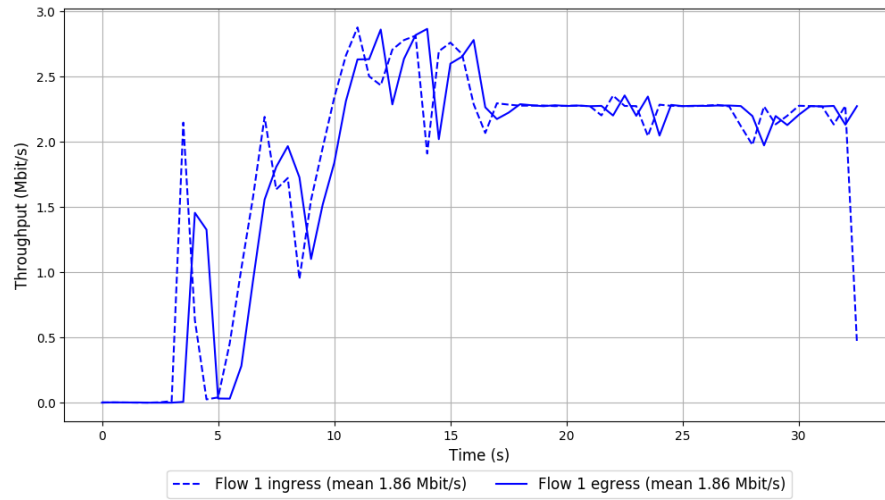
-- Flow 1:

Average throughput: 1.86 Mbit/s

95th percentile per-packet one-way delay: 86.136 ms

Loss rate: 0.69%

#### Run 4: Report of WebRTC media — Data Link



Run 5: Statistics of WebRTC media

Start at: 2018-09-07 10:35:30

End at: 2018-09-07 10:36:00

Local clock offset: 1.802 ms

Remote clock offset: 3.854 ms

# Below is generated by plot.py at 2018-09-07 12:32:14

# Datalink statistics

-- Total of 1 flow:

Average throughput: 1.84 Mbit/s

95th percentile per-packet one-way delay: 86.199 ms

Loss rate: 0.63%

-- Flow 1:

Average throughput: 1.84 Mbit/s

95th percentile per-packet one-way delay: 86.199 ms

Loss rate: 0.63%

Run 5: Report of WebRTC media — Data Link

